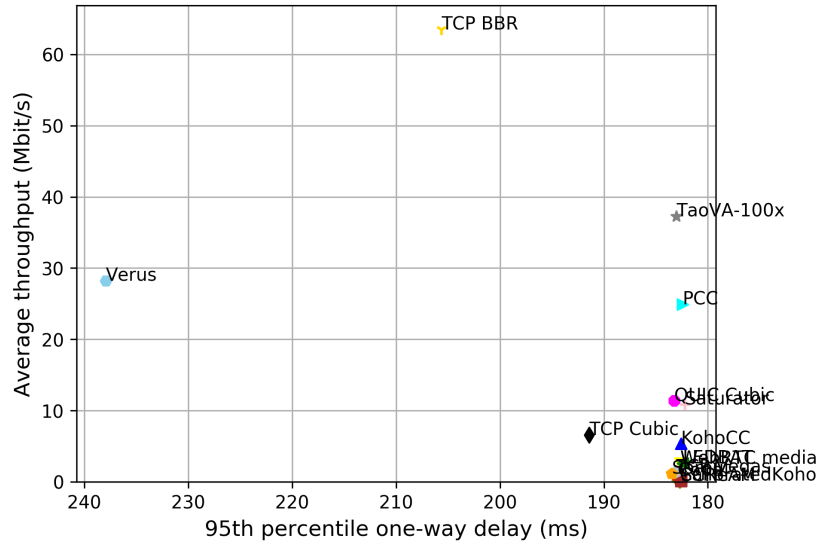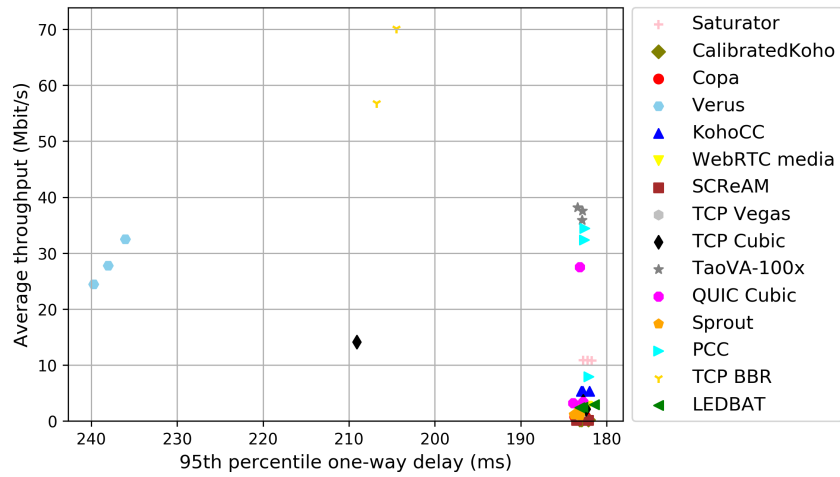**Pantheon Summary** (Generated at Sun, 06 Aug 2017 09:06:10 +0000 with pantheon version `a934ee3822380a12762347e6bc8bd1f3e836e73b`)

Repeated the test of 15 congestion control schemes 3 times.

Each test lasted for 30 seconds running 1 flow.

Data path: China Ethernet (*remote*) →AWS Korea Ethernet (*local*).

NTP offset measured against ntp.nict.jp and has been applied to correct the timestamps in logs.

```
git branch: master @ a934ee3822380a12762347e6bc8bd1f3e836e73b
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
 M datagrump/sender.cc
third_party/genericCC @ dae96123232f1bcb37725348fa2378691ce26725
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
 M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-stimuli @ fc73a85ca16c34366d1888dc8a0d0d88d4ebf2a7
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaeeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
third_party/webrtc @ a488197ddd041ace68a42849b2540ad834825f42
```

## test from China Ethernet to AWS Korea Ethernet, 3 runs of 30s each per scheme (mean of all runs by scheme)



## test from China Ethernet to AWS Korea Ethernet, 3 runs of 30s each per scheme

| scheme | # runs | mean avg tput (Mbit/s) flow 1 | mean 95th-%ile delay (ms) flow 1 | mean loss rate (%) flow 1 |
|---|---|---|---|---|
| TCP BBR | 3 | 63.48 | 205.64 | 1.58 |
| CalibratedKoho | 3 | 0.24 | 182.71 | 0.62 |
| Copa | 3 | 0.89 | 182.94 | 0.61 |
| TCP Cubic | 3 | 6.60 | 191.41 | 1.08 |
| KohoCC | 3 | 5.35 | 182.58 | 0.98 |
| LEDBAT | 3 | 2.60 | 182.42 | 0.53 |
| PCC | 3 | 24.91 | 182.41 | 1.20 |
| QUIC Cubic | 3 | 11.39 | 183.26 | 1.12 |
| Saturator | 3 | 10.85 | 182.23 | 0.90 |
| SCReAM | 3 | 0.14 | 182.60 | 0.61 |
| Sprout | 3 | 1.17 | 183.48 | 0.90 |
| TaoVA-100x | 3 | 37.23 | 183.02 | 0.76 |
| TCP Vegas | 3 | 1.37 | 183.07 | 0.87 |
| Verus | 3 | 28.24 | 237.95 | 49.28 |
| WebRTC media | 3 | 2.57 | 182.66 | 0.74 |

```
Run 1: Statistics of TCP BBR

Start at: Sun, 06 Aug 2017 07:07:57 +0000
End at: Sun, 06 Aug 2017 07:08:27 +0000
Local clock offset: 2.45 ms
Remote clock offset: -0.372 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:12 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 56.81 Mbit/s
95th percentile per-packet one-way delay: 206.788 ms
Loss rate: 1.34%
-- Flow 1:
Average throughput: 56.81 Mbit/s
95th percentile per-packet one-way delay: 206.788 ms
Loss rate: 1.34%
```
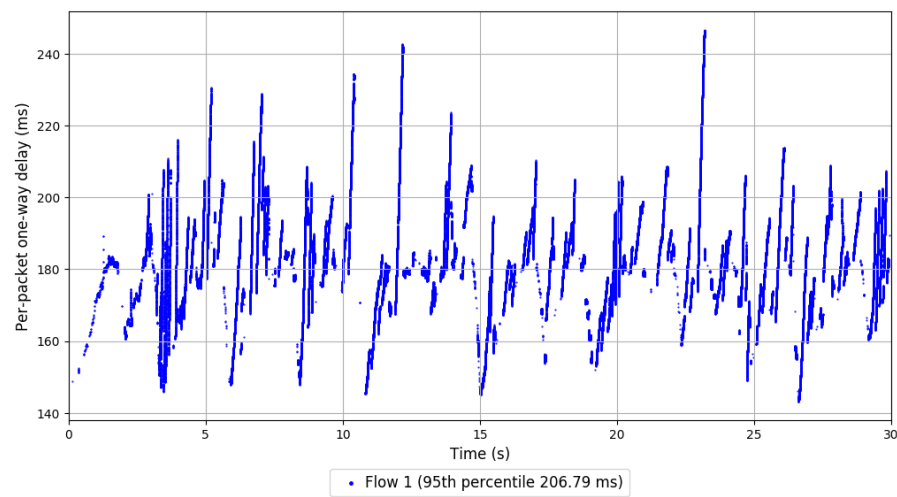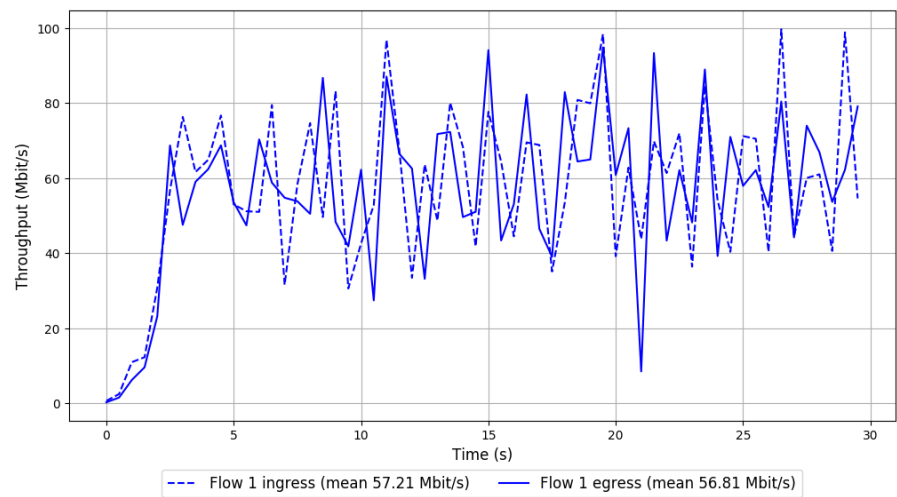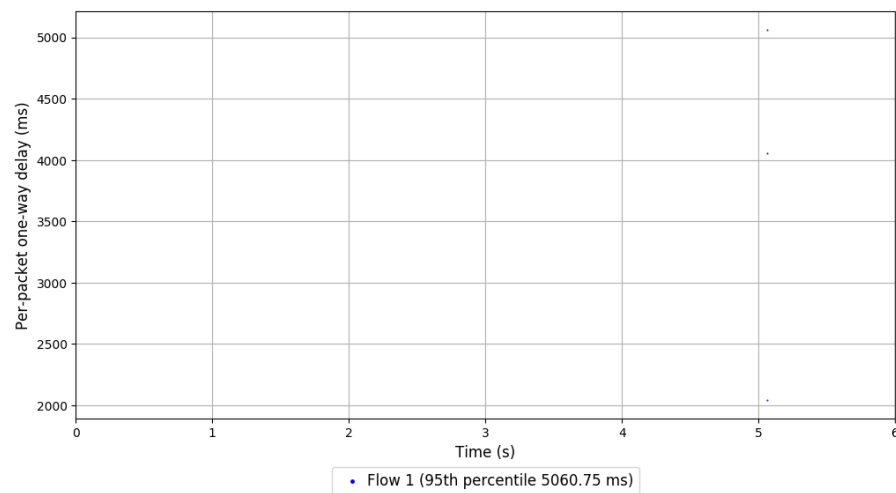
Run 1: Report of TCP BBR — Data Link
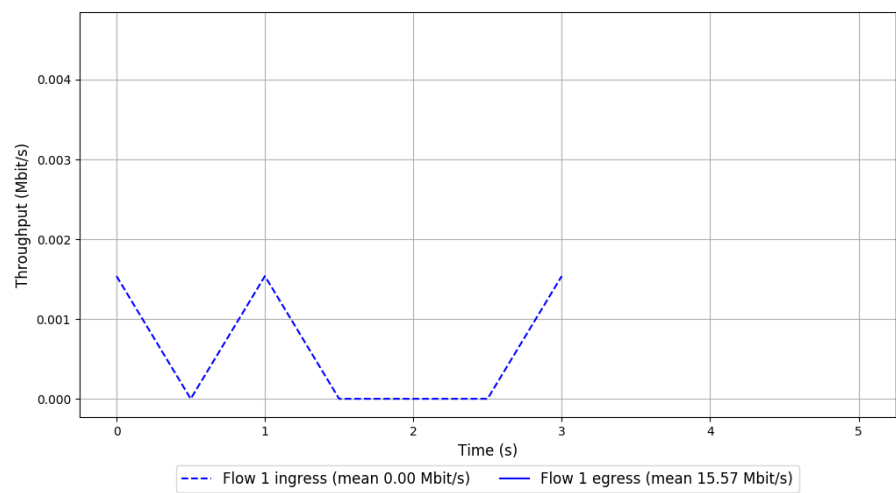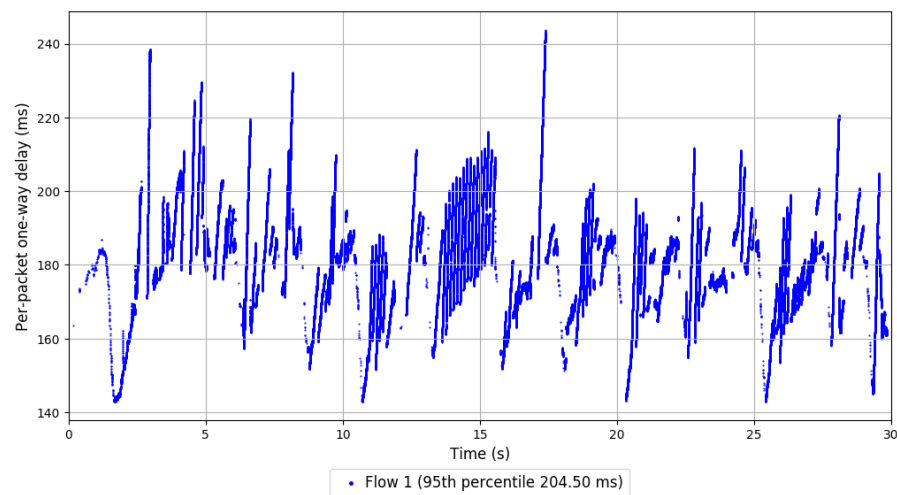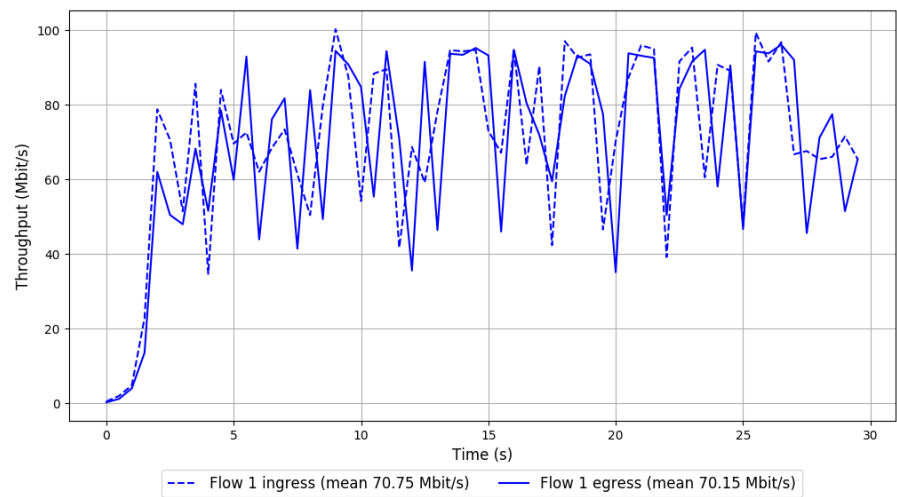
Run 2: Statistics of TCP BBR

Start at: Sun, 06 Aug 2017 07:28:12 +0000
End at: Sun, 06 Aug 2017 07:28:42 +0000
Local clock offset: 2.33 ms
Remote clock offset: 0.32 ms

# Run 2: Report of TCP BBR — Data Link



Flow 1 ingress (mean 0.00 Mbit/s) —— Flow 1 egress (mean 15.57 Mbit/s)



• Flow 1 (95th percentile 5060.75 ms)

```
Run 3: Statistics of TCP BBR

Start at: Sun, 06 Aug 2017 07:47:46 +0000
End at: Sun, 06 Aug 2017 07:48:16 +0000
Local clock offset: 2.99 ms
Remote clock offset: 0.578 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 70.15 Mbit/s
95th percentile per-packet one-way delay: 204.501 ms
Loss rate: 1.82%
-- Flow 1:
Average throughput: 70.15 Mbit/s
95th percentile per-packet one-way delay: 204.501 ms
Loss rate: 1.82%
```

Run 3: Report of TCP BBR — Data Link

```
Run 1: Statistics of CalibratedKoho

Start at: Sun, 06 Aug 2017 07:15:59 +0000
End at: Sun, 06 Aug 2017 07:16:29 +0000
Local clock offset: 2.416 ms
Remote clock offset: -0.11 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 182.919 ms
Loss rate: 0.83%
-- Flow 1:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 182.919 ms
Loss rate: 0.83%
```
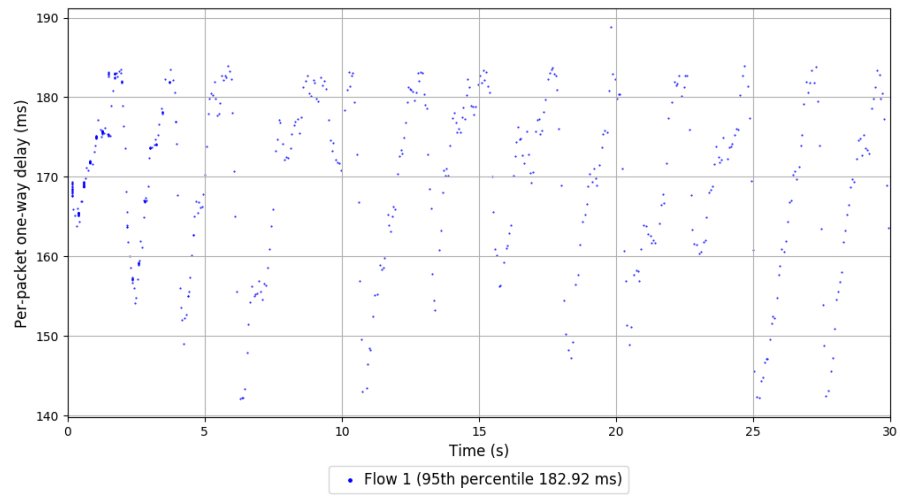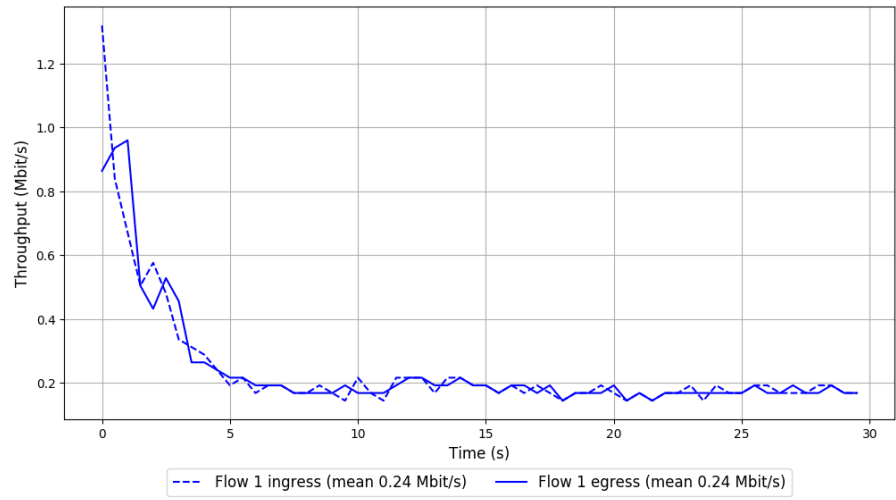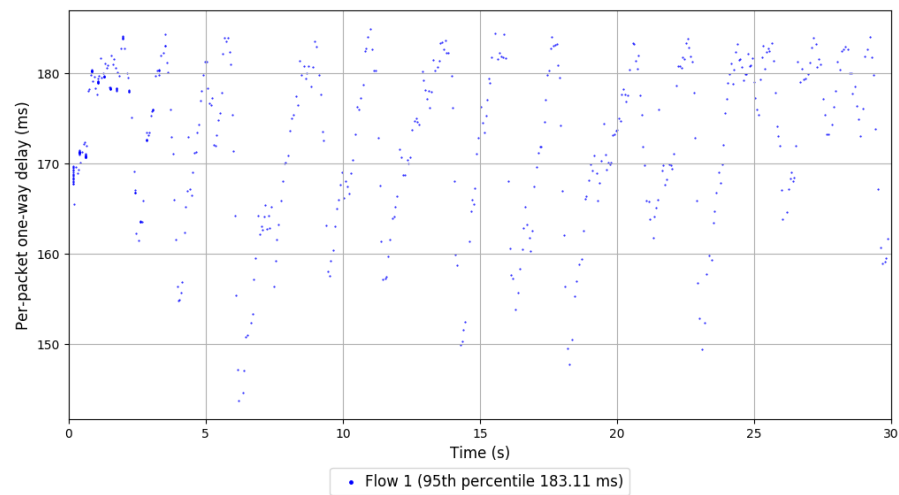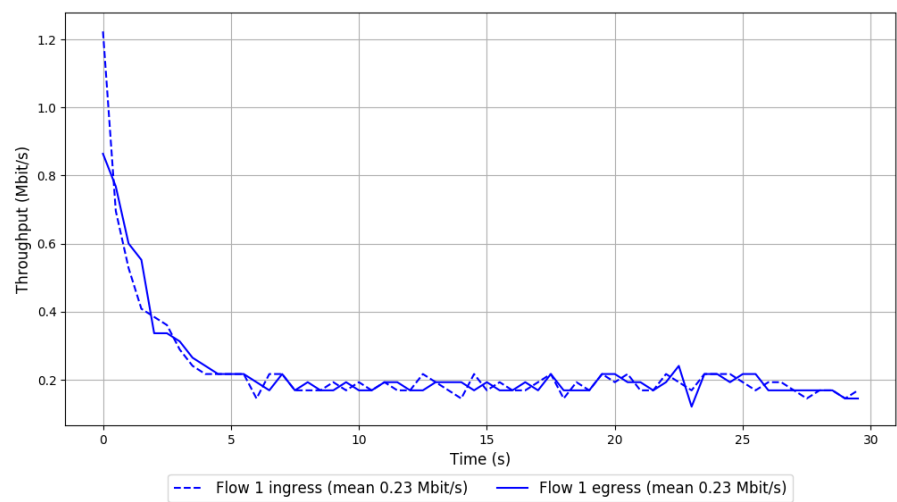
# Run 1: Report of CalibratedKoho — Data Link



Flow 1 ingress (mean 0.24 Mbit/s)    Flow 1 egress (mean 0.24 Mbit/s)



Flow 1 (95th percentile 182.92 ms)

```
Run 2: Statistics of CalibratedKoho

Start at: Sun, 06 Aug 2017 07:35:49 +0000
End at: Sun, 06 Aug 2017 07:36:19 +0000
Local clock offset: 2.258 ms
Remote clock offset: 0.278 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 183.114 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 0.23 Mbit/s
95th percentile per-packet one-way delay: 183.114 ms
Loss rate: 0.52%
```
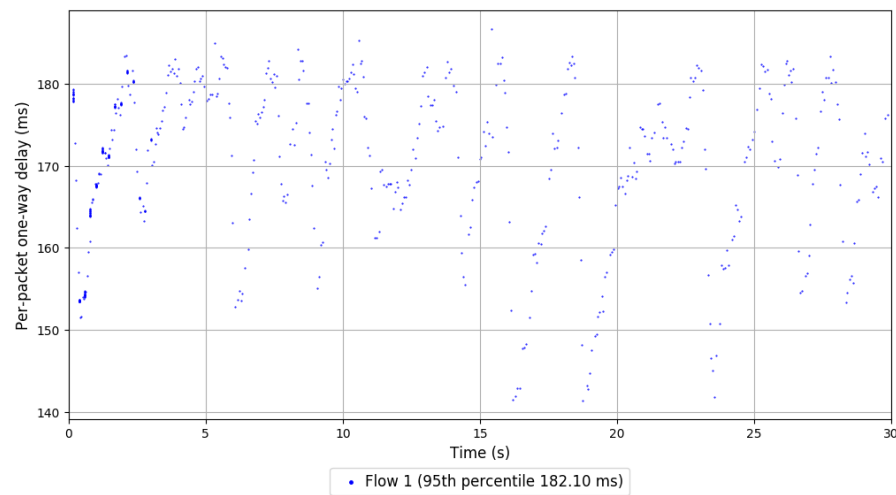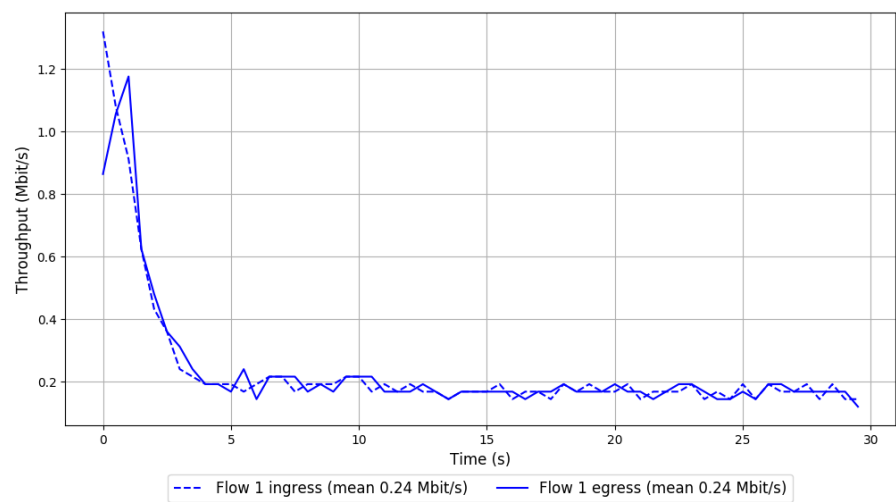
Run 2: Report of CalibratedKoho — Data Link

```
Run 3: Statistics of CalibratedKoho

Start at: Sun, 06 Aug 2017 07:55:38 +0000
End at: Sun, 06 Aug 2017 07:56:08 +0000
Local clock offset: 2.105 ms
Remote clock offset: 0.64 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 182.105 ms
Loss rate: 0.50%
-- Flow 1:
Average throughput: 0.24 Mbit/s
95th percentile per-packet one-way delay: 182.105 ms
Loss rate: 0.50%
```
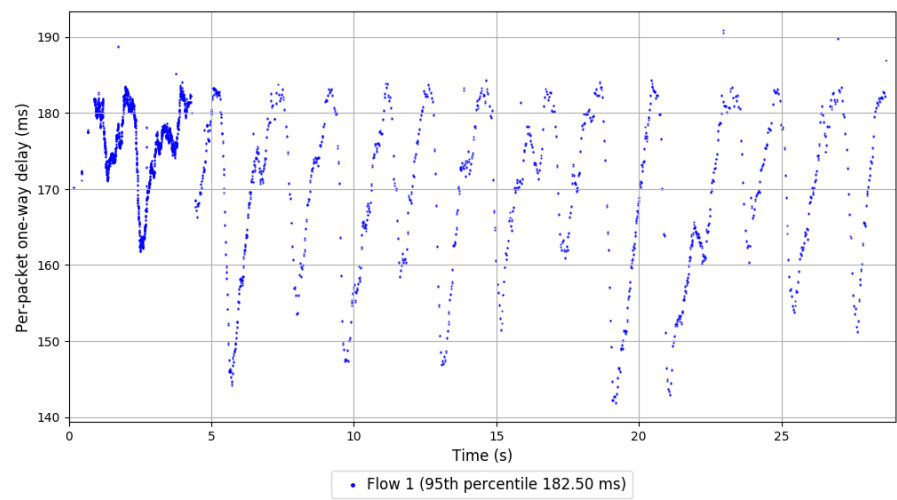
Run 3: Report of CalibratedKoho — Data Link

```
Run 1: Statistics of Copa

Start at: Sun, 06 Aug 2017 07:11:55 +0000
End at: Sun, 06 Aug 2017 07:12:25 +0000
Local clock offset: 2.119 ms
Remote clock offset: -0.263 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 182.503 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 0.97 Mbit/s
95th percentile per-packet one-way delay: 182.503 ms
Loss rate: 0.52%
```
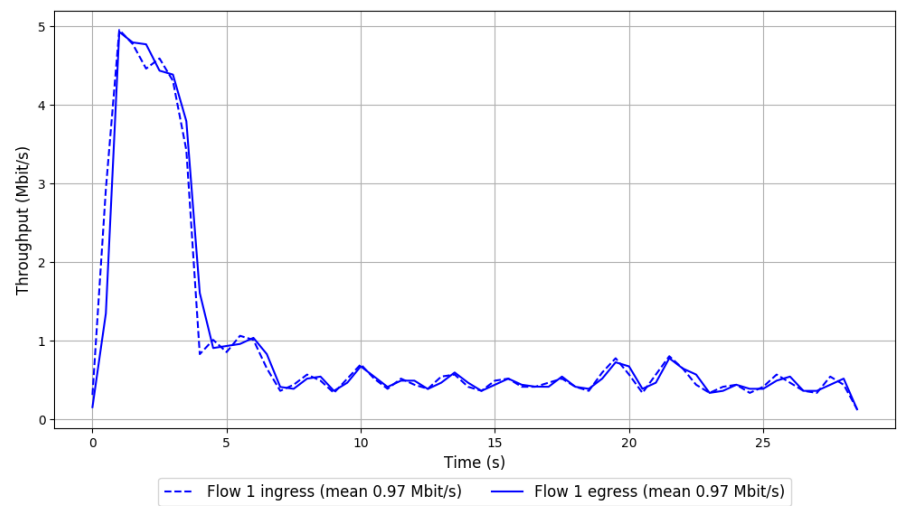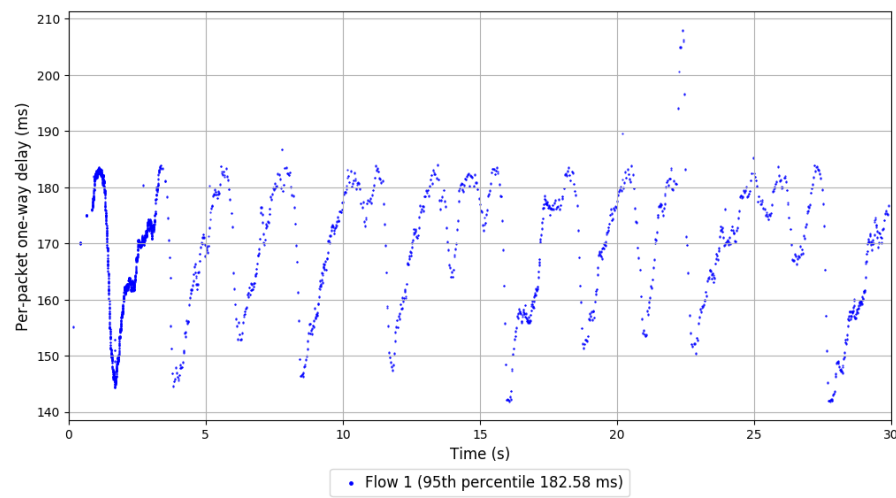
Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: Sun, 06 Aug 2017 07:31:53 +0000
End at: Sun, 06 Aug 2017 07:32:23 +0000
Local clock offset: 2.367 ms
Remote clock offset: 0.291 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:18 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 182.584 ms
Loss rate: 0.67%
-- Flow 1:
Average throughput: 0.87 Mbit/s
95th percentile per-packet one-way delay: 182.584 ms
Loss rate: 0.67%
```
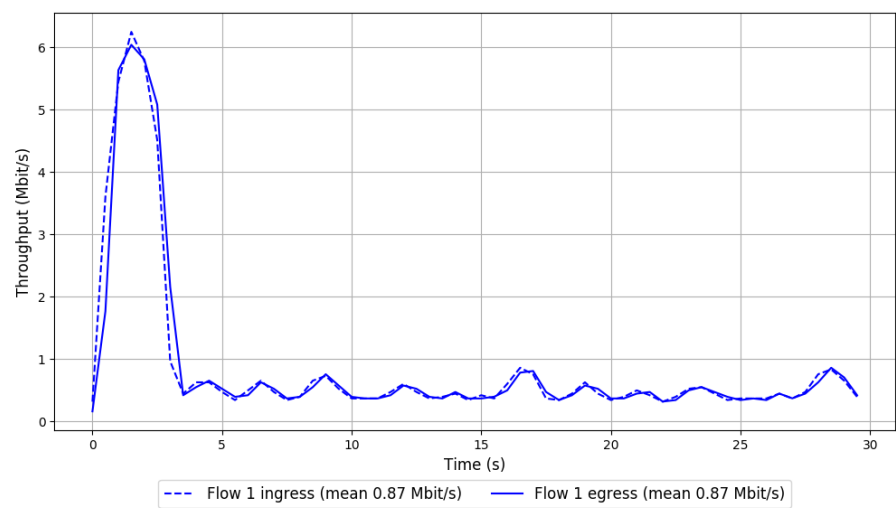
Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: Sun, 06 Aug 2017 07:51:53 +0000
End at: Sun, 06 Aug 2017 07:52:23 +0000
Local clock offset: 2.955 ms
Remote clock offset: 0.594 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:19 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 183.732 ms
Loss rate: 0.65%
-- Flow 1:
Average throughput: 0.82 Mbit/s
95th percentile per-packet one-way delay: 183.732 ms
Loss rate: 0.65%
```
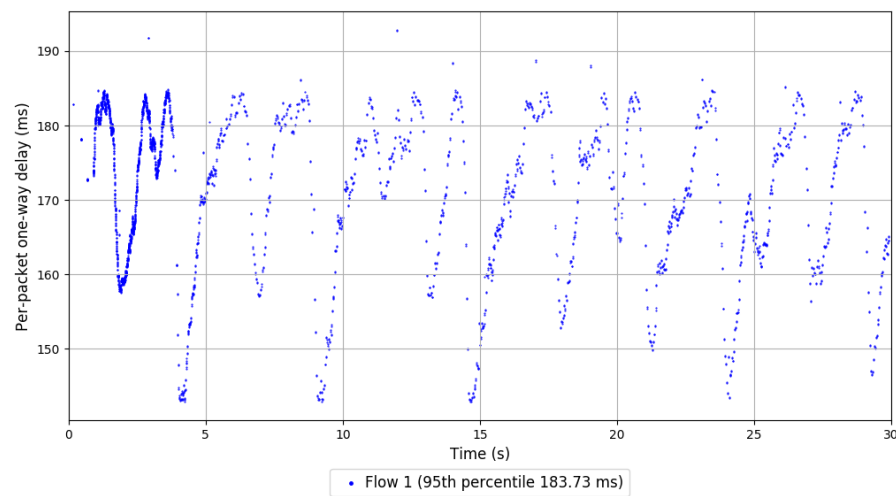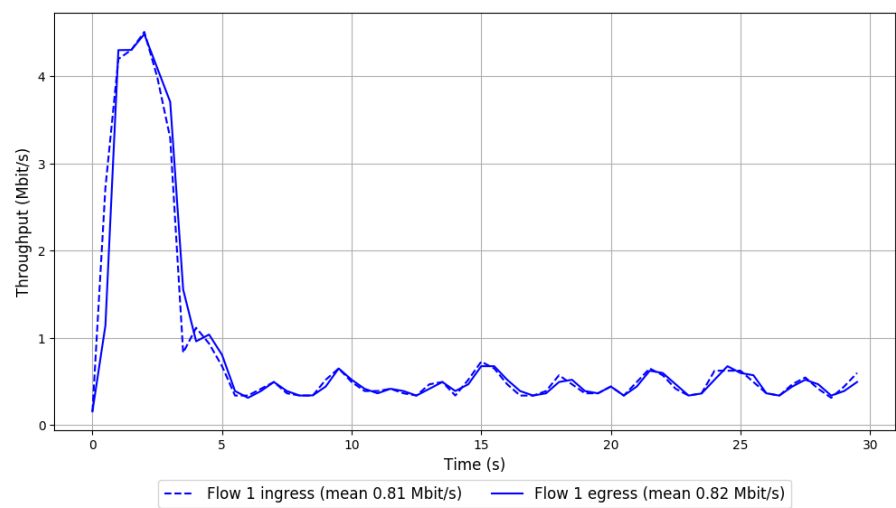
Run 3: Report of Copa — Data Link



Flow 1 ingress (mean 0.81 Mbit/s)    Flow 1 egress (mean 0.82 Mbit/s)



Flow 1 (95th percentile 183.73 ms)

```
Run 1: Statistics of TCP Cubic

Start at: Sun, 06 Aug 2017 07:17:12 +0000
End at: Sun, 06 Aug 2017 07:17:42 +0000
Local clock offset: 3.233 ms
Remote clock offset: -0.059 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:19 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 182.397 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 2.16 Mbit/s
95th percentile per-packet one-way delay: 182.397 ms
Loss rate: 1.00%
```
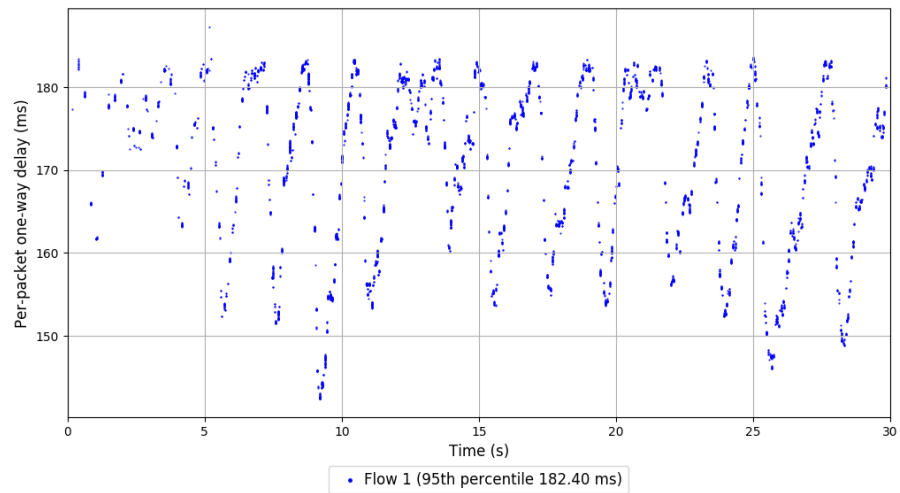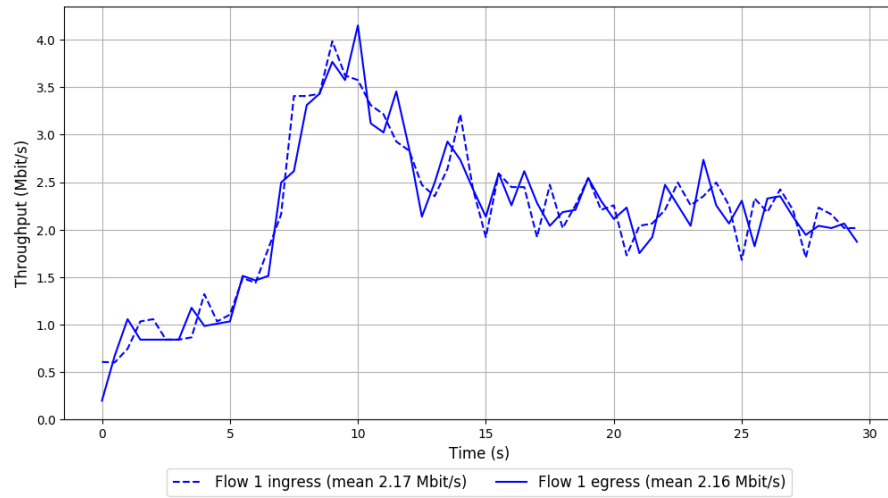
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: Sun, 06 Aug 2017 07:37:02 +0000
End at: Sun, 06 Aug 2017 07:37:32 +0000
Local clock offset: 2.269 ms
Remote clock offset: 0.371 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:21 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 14.11 Mbit/s
95th percentile per-packet one-way delay: 209.108 ms
Loss rate: 1.26%
-- Flow 1:
Average throughput: 14.11 Mbit/s
95th percentile per-packet one-way delay: 209.108 ms
Loss rate: 1.26%
```
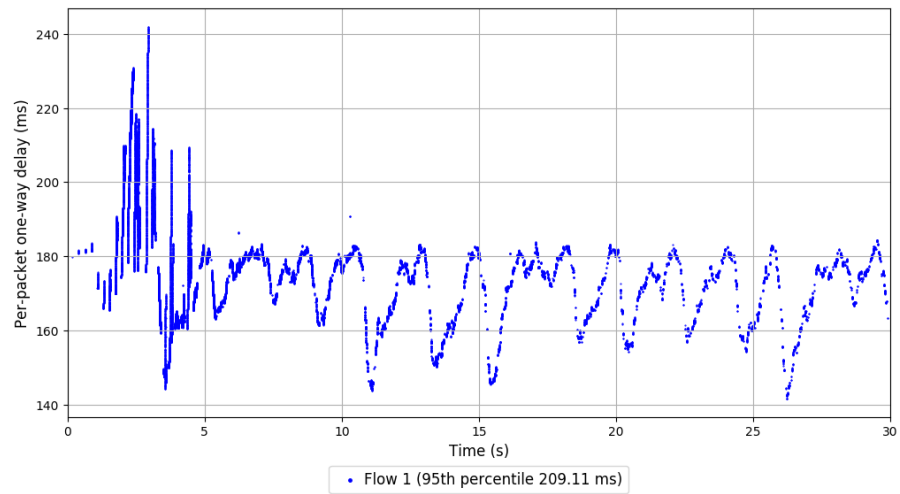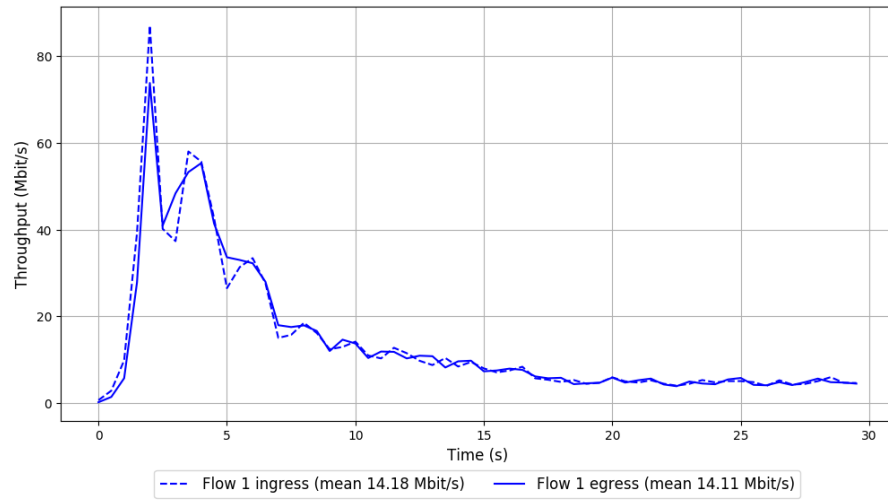
Run 2: Report of TCP Cubic — Data Link



- - - Flow 1 ingress (mean 14.18 Mbit/s) —— Flow 1 egress (mean 14.11 Mbit/s)



• Flow 1 (95th percentile 209.11 ms)

```
Run 3: Statistics of TCP Cubic

Start at: Sun, 06 Aug 2017 07:56:51 +0000
End at: Sun, 06 Aug 2017 07:57:21 +0000
Local clock offset: 2.841 ms
Remote clock offset: 0.638 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:21 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.53 Mbit/s
95th percentile per-packet one-way delay: 182.739 ms
Loss rate: 0.97%
-- Flow 1:
Average throughput: 3.53 Mbit/s
95th percentile per-packet one-way delay: 182.739 ms
Loss rate: 0.97%
```
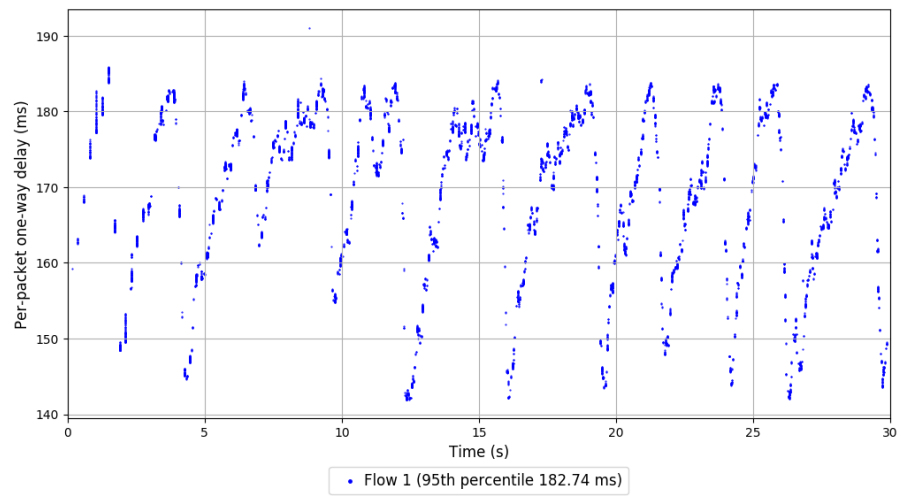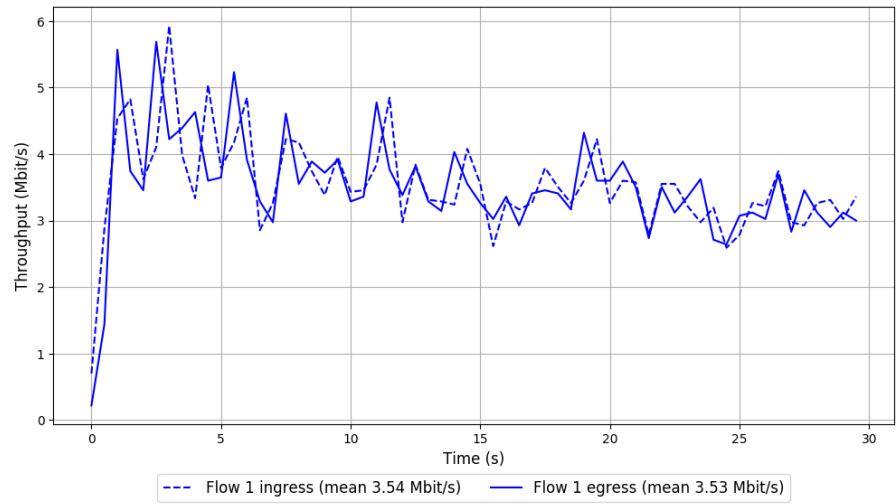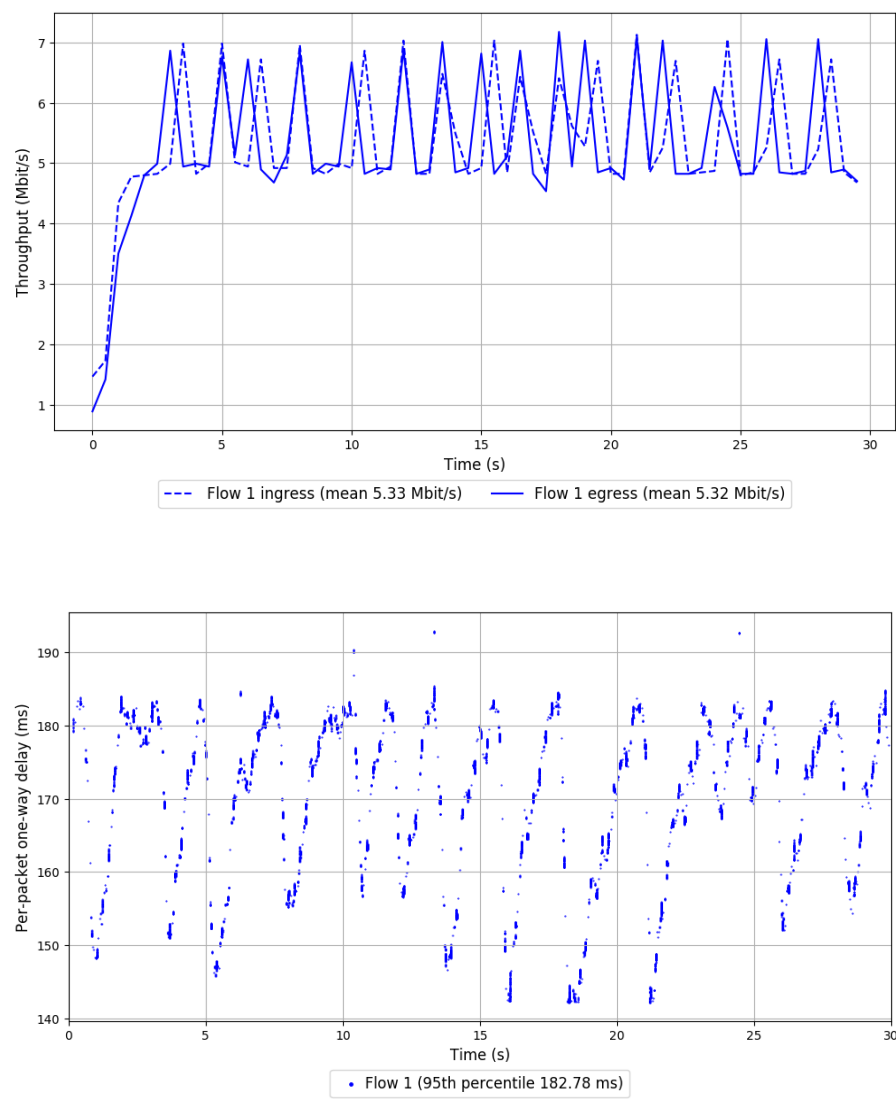
Run 3: Report of TCP Cubic — Data Link



Flow 1 ingress (mean 3.54 Mbit/s) ---    Flow 1 egress (mean 3.53 Mbit/s) ——



Flow 1 (95th percentile 182.74 ms)

```
Run 1: Statistics of KohoCC

Start at: Sun, 06 Aug 2017 07:18:33 +0000
End at: Sun, 06 Aug 2017 07:19:03 +0000
Local clock offset: 2.453 ms
Remote clock offset: -0.109 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:22 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.32 Mbit/s
95th percentile per-packet one-way delay: 182.785 ms
Loss rate: 1.10%
-- Flow 1:
Average throughput: 5.32 Mbit/s
95th percentile per-packet one-way delay: 182.785 ms
Loss rate: 1.10%
```
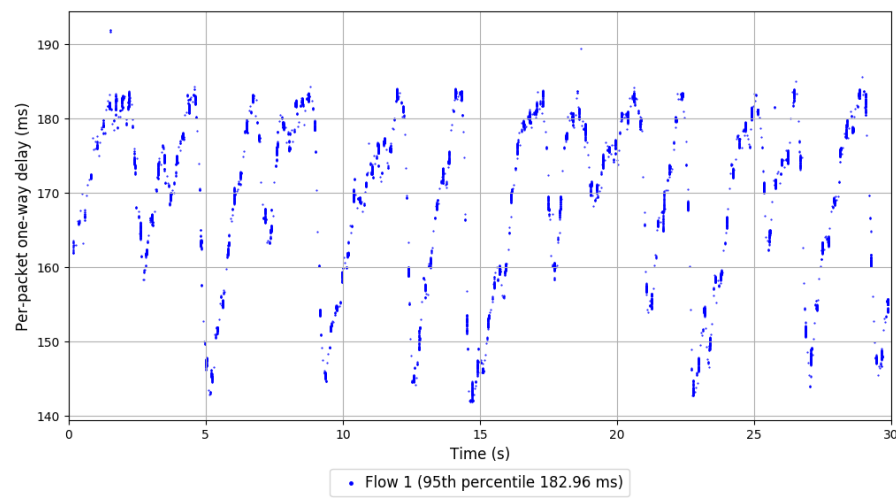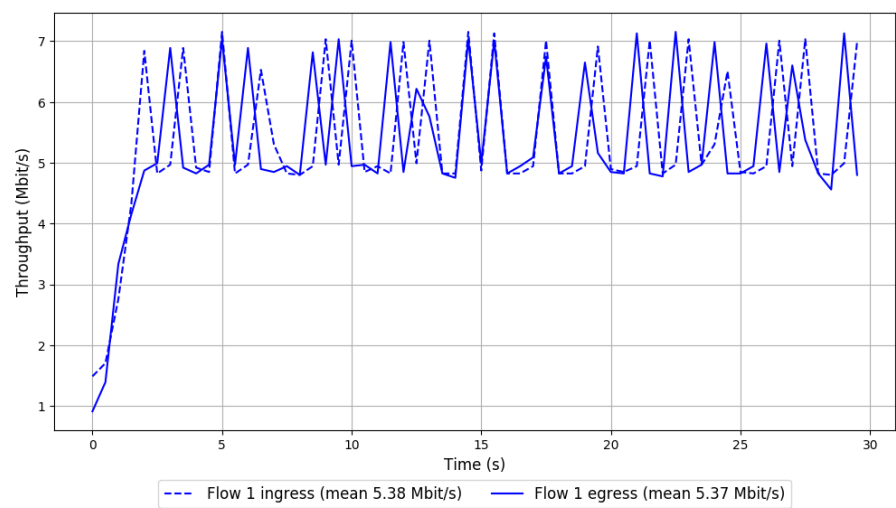
Run 1: Report of KohoCC — Data Link



Flow 1 ingress (mean 5.33 Mbit/s)    Flow 1 egress (mean 5.32 Mbit/s)



Flow 1 (95th percentile 182.78 ms)

```
Run 2: Statistics of KohoCC

Start at: Sun, 06 Aug 2017 07:38:19 +0000
End at: Sun, 06 Aug 2017 07:38:49 +0000
Local clock offset: 2.284 ms
Remote clock offset: 0.367 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:23 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 182.957 ms
Loss rate: 0.96%
-- Flow 1:
Average throughput: 5.37 Mbit/s
95th percentile per-packet one-way delay: 182.957 ms
Loss rate: 0.96%
```
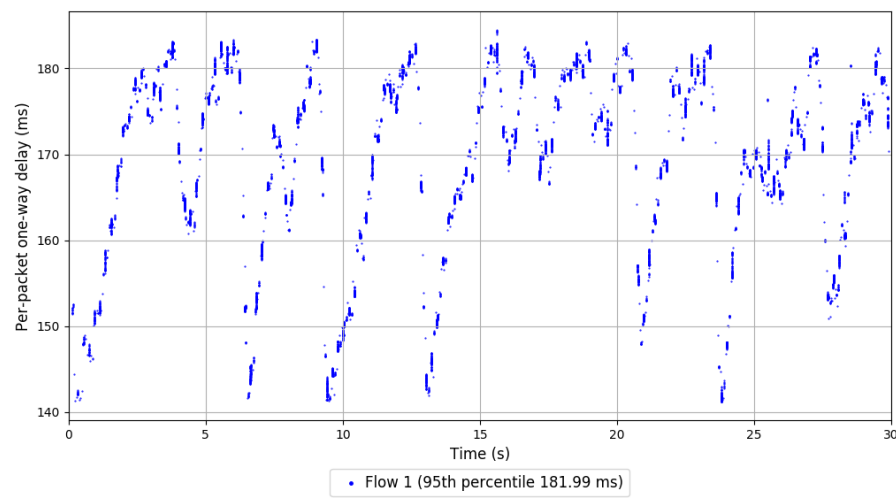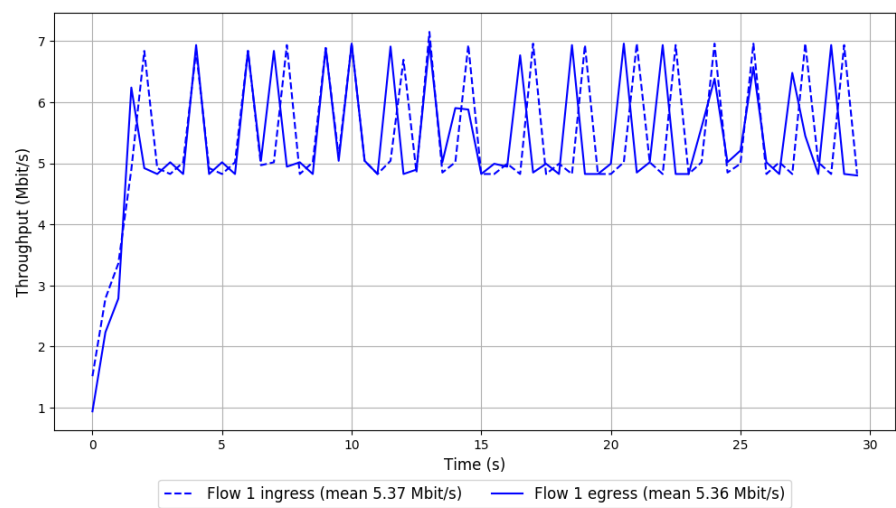
Run 2: Report of KohoCC — Data Link



Flow 1 ingress (mean 5.38 Mbit/s)    —— Flow 1 egress (mean 5.37 Mbit/s)



• Flow 1 (95th percentile 182.96 ms)

```
Run 3: Statistics of KohoCC

Start at: Sun, 06 Aug 2017 07:58:06 +0000
End at: Sun, 06 Aug 2017 07:58:36 +0000
Local clock offset: 2.021 ms
Remote clock offset: 0.628 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:24 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 5.36 Mbit/s
95th percentile per-packet one-way delay: 181.993 ms
Loss rate: 0.87%
-- Flow 1:
Average throughput: 5.36 Mbit/s
95th percentile per-packet one-way delay: 181.993 ms
Loss rate: 0.87%
```

Run 3: Report of KohoCC — Data Link

```
Run 1: Statistics of LEDBAT

Start at: Sun, 06 Aug 2017 07:21:31 +0000
End at: Sun, 06 Aug 2017 07:22:01 +0000
Local clock offset: 3.227 ms
Remote clock offset: 0.04 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:24 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.45 Mbit/s
95th percentile per-packet one-way delay: 182.757 ms
Loss rate: 0.73%
-- Flow 1:
Average throughput: 2.45 Mbit/s
95th percentile per-packet one-way delay: 182.757 ms
Loss rate: 0.73%
```
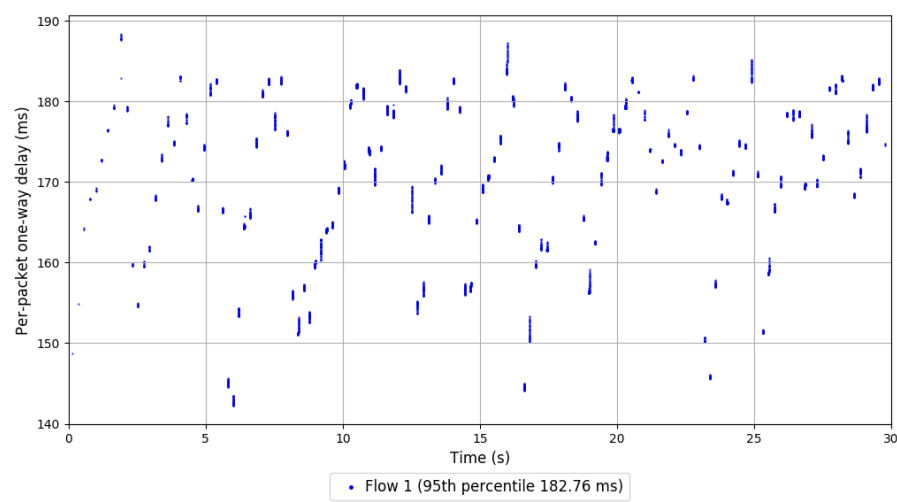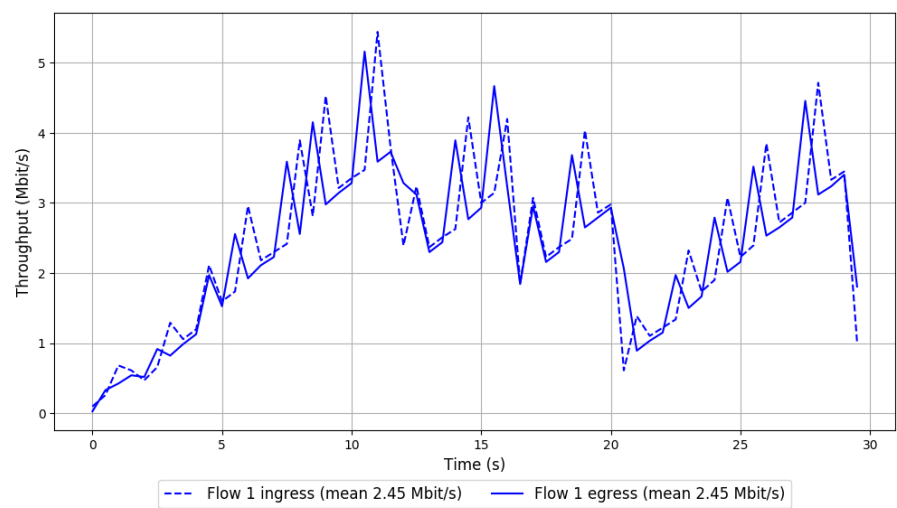
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: Sun, 06 Aug 2017 07:41:00 +0000
End at: Sun, 06 Aug 2017 07:41:30 +0000
Local clock offset: 2.303 ms
Remote clock offset: 0.458 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:25 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 183.104 ms
Loss rate: 0.43%
-- Flow 1:
Average throughput: 2.39 Mbit/s
95th percentile per-packet one-way delay: 183.104 ms
Loss rate: 0.43%
```
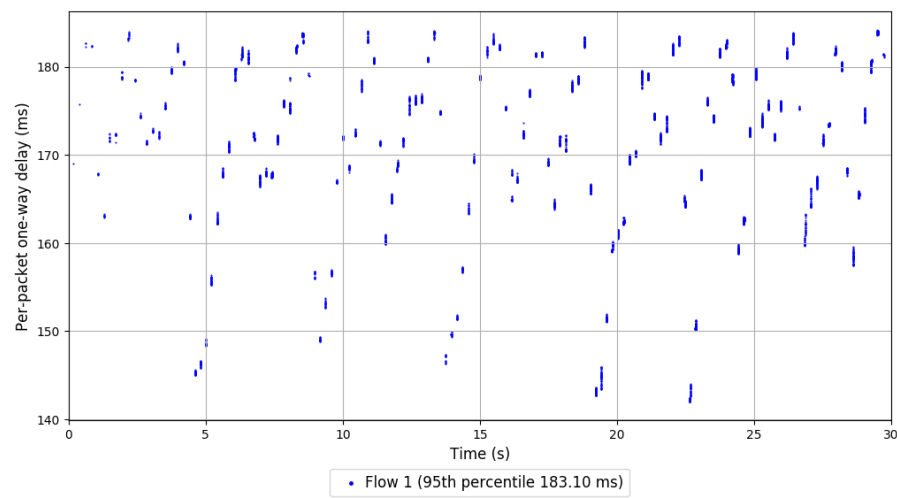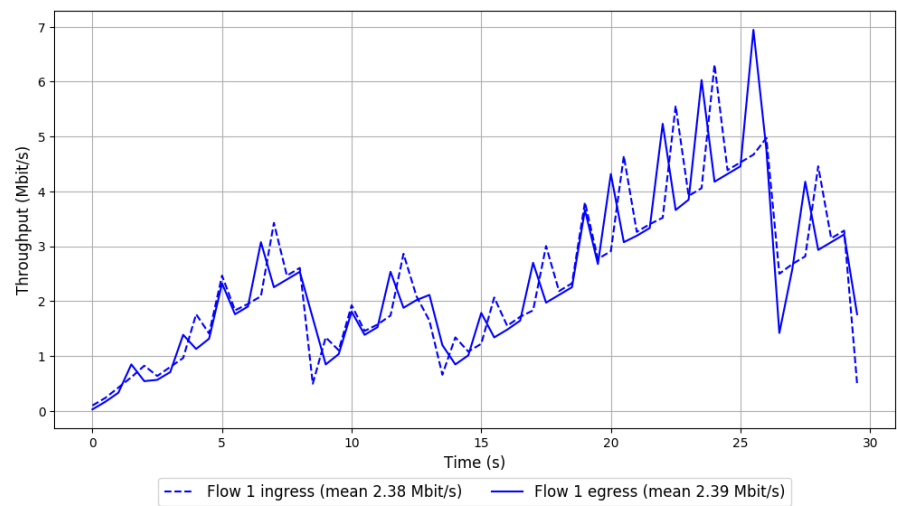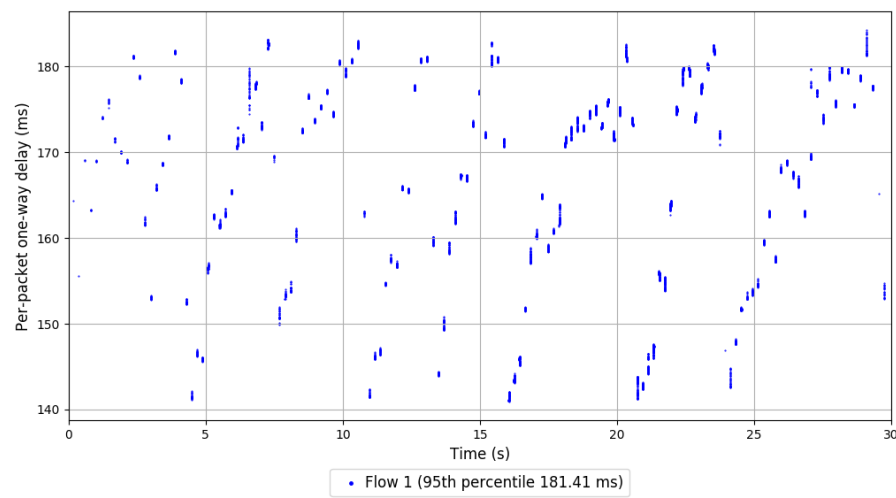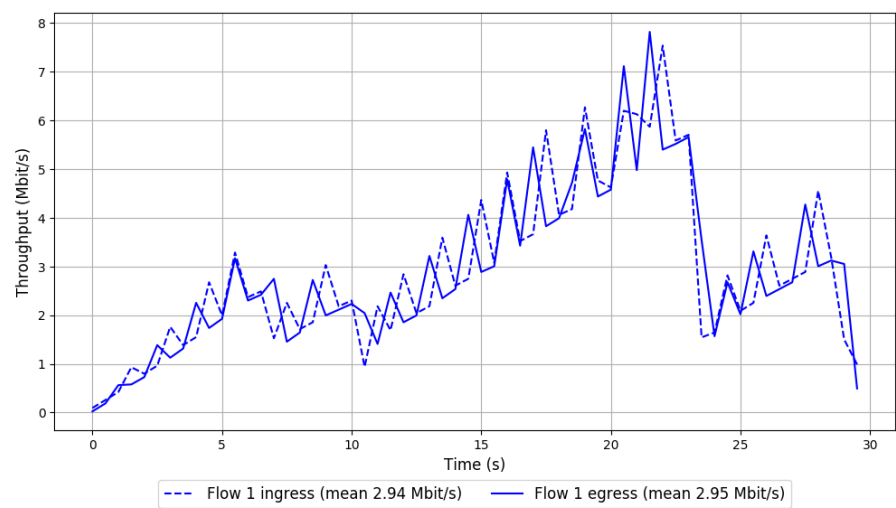
Run 2: Report of LEDBAT — Data Link

```
Run 3: Statistics of LEDBAT

Start at: Sun, 06 Aug 2017 08:00:54 +0000
End at: Sun, 06 Aug 2017 08:01:24 +0000
Local clock offset: 1.631 ms
Remote clock offset: 0.675 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:26 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.95 Mbit/s
95th percentile per-packet one-way delay: 181.414 ms
Loss rate: 0.44%
-- Flow 1:
Average throughput: 2.95 Mbit/s
95th percentile per-packet one-way delay: 181.414 ms
Loss rate: 0.44%
```
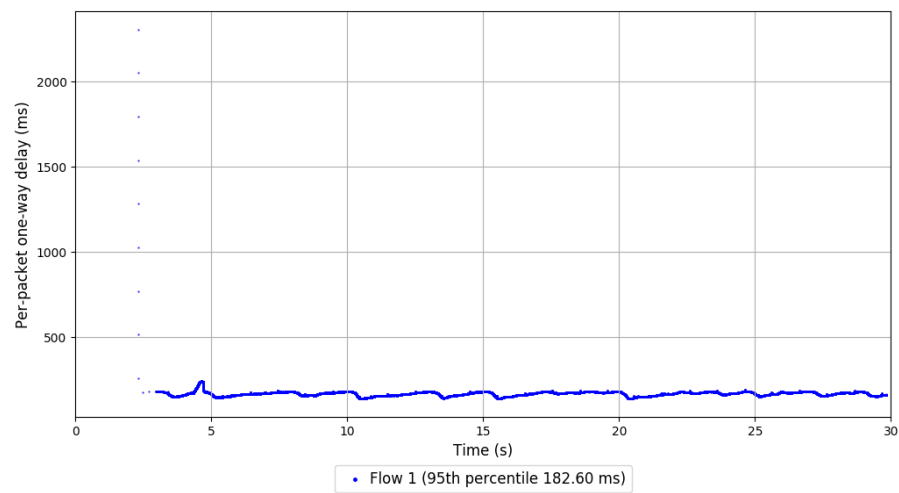
Run 3: Report of LEDBAT — Data Link



Flow 1 ingress (mean 2.94 Mbit/s)    Flow 1 egress (mean 2.95 Mbit/s)



Flow 1 (95th percentile 181.41 ms)

```
Run 1: Statistics of PCC

Start at: Sun, 06 Aug 2017 07:13:09 +0000
End at: Sun, 06 Aug 2017 07:13:39 +0000
Local clock offset: 2.412 ms
Remote clock offset: -0.205 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 32.37 Mbit/s
95th percentile per-packet one-way delay: 182.596 ms
Loss rate: 1.38%
-- Flow 1:
Average throughput: 32.37 Mbit/s
95th percentile per-packet one-way delay: 182.596 ms
Loss rate: 1.38%
```
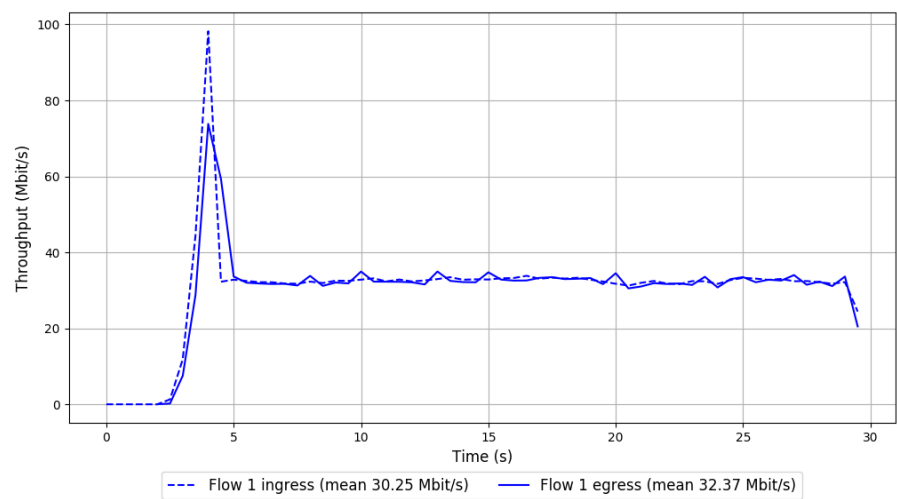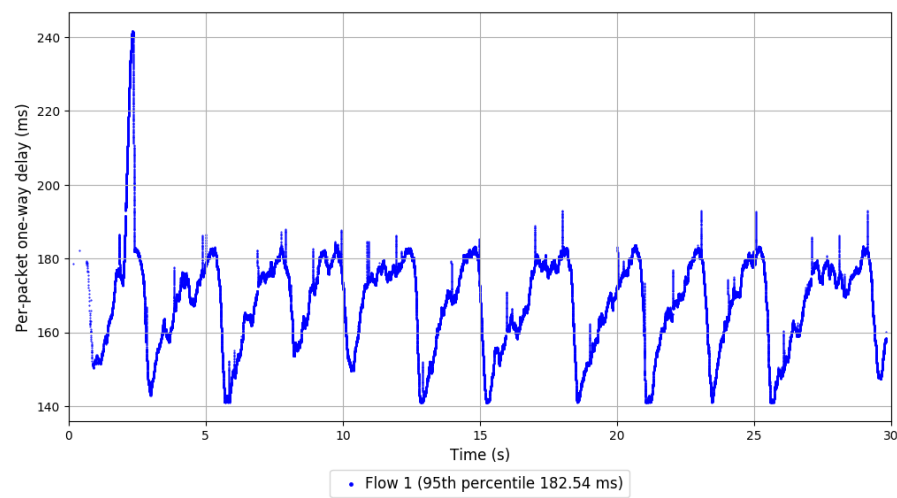
Run 1: Report of PCC — Data Link

```
Run 2: Statistics of PCC

Start at: Sun, 06 Aug 2017 07:33:07 +0000
End at: Sun, 06 Aug 2017 07:33:37 +0000
Local clock offset: 2.309 ms
Remote clock offset: 0.29 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:31 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 34.42 Mbit/s
95th percentile per-packet one-way delay: 182.543 ms
Loss rate: 1.28%
-- Flow 1:
Average throughput: 34.42 Mbit/s
95th percentile per-packet one-way delay: 182.543 ms
Loss rate: 1.28%
```
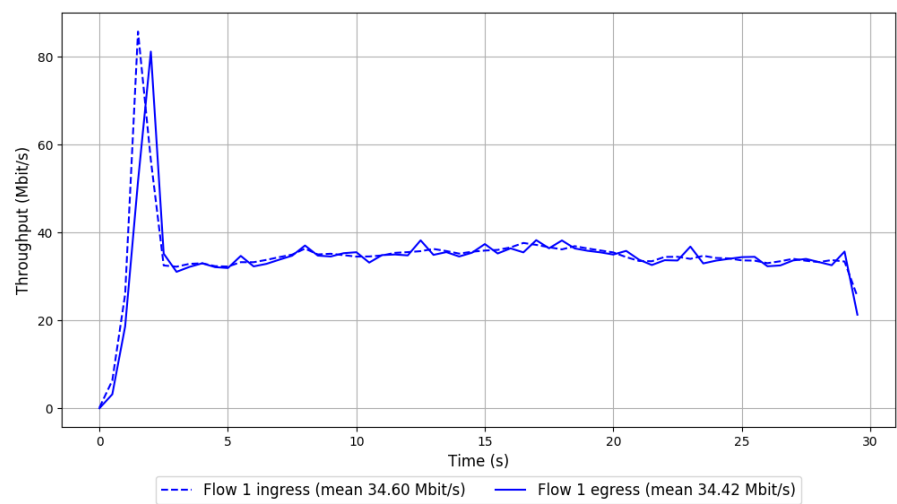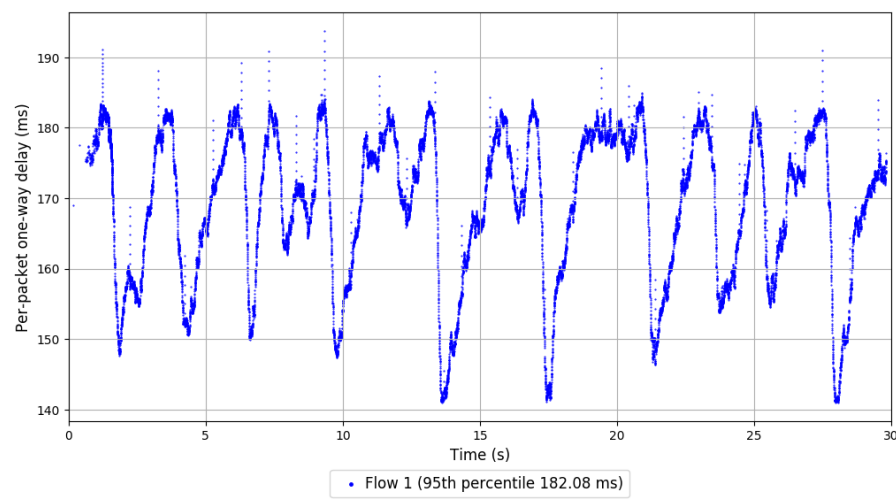
Run 2: Report of PCC — Data Link



Flow 1 ingress (mean 34.60 Mbit/s) --- Flow 1 egress (mean 34.42 Mbit/s)



· Flow 1 (95th percentile 182.54 ms)

43

```
Run 3: Statistics of PCC

Start at: Sun, 06 Aug 2017 07:53:06 +0000
End at: Sun, 06 Aug 2017 07:53:36 +0000
Local clock offset: 2.085 ms
Remote clock offset: 0.593 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:33 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.95 Mbit/s
95th percentile per-packet one-way delay: 182.081 ms
Loss rate: 0.94%
-- Flow 1:
Average throughput: 7.95 Mbit/s
95th percentile per-packet one-way delay: 182.081 ms
Loss rate: 0.94%
```
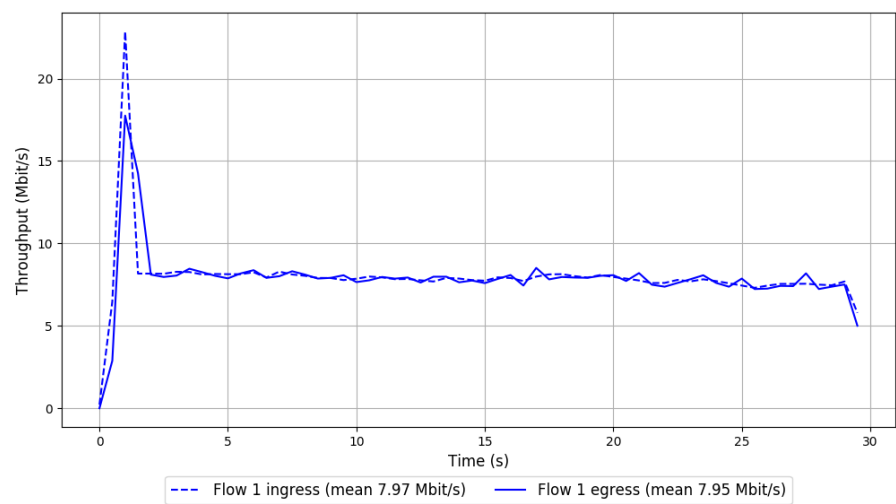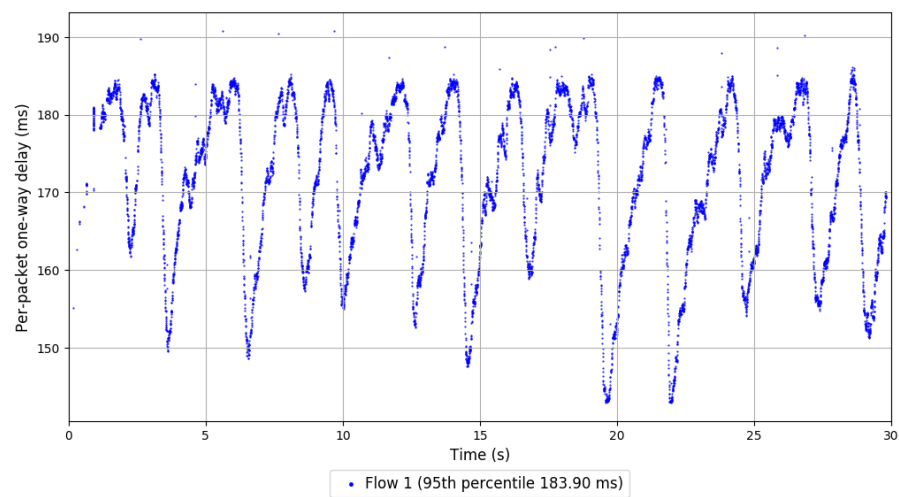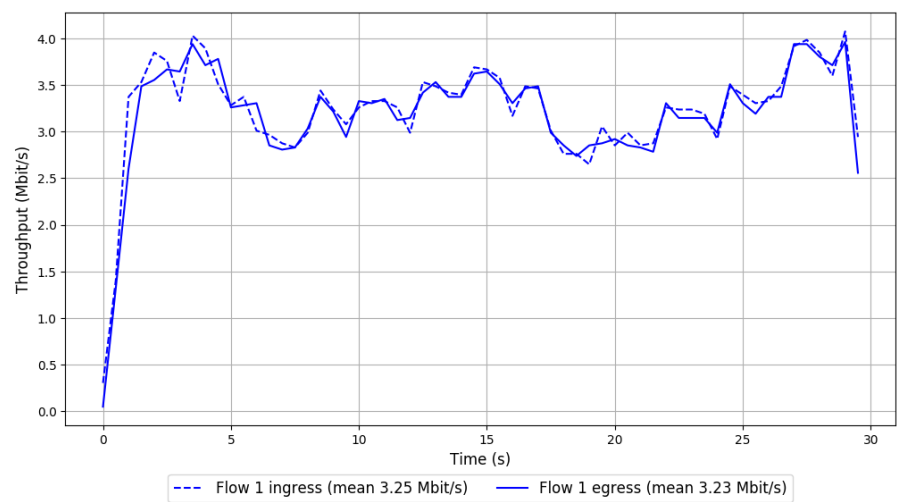
Run 3: Report of PCC — Data Link



Flow 1 ingress (mean 7.97 Mbit/s)    Flow 1 egress (mean 7.95 Mbit/s)



Flow 1 (95th percentile 182.08 ms)

```
Run 1: Statistics of QUIC Cubic

Start at: Sun, 06 Aug 2017 07:25:20 +0000
End at: Sun, 06 Aug 2017 07:25:50 +0000
Local clock offset: 3.238 ms
Remote clock offset: 0.128 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:33 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 183.904 ms
Loss rate: 1.24%
-- Flow 1:
Average throughput: 3.23 Mbit/s
95th percentile per-packet one-way delay: 183.904 ms
Loss rate: 1.24%
```
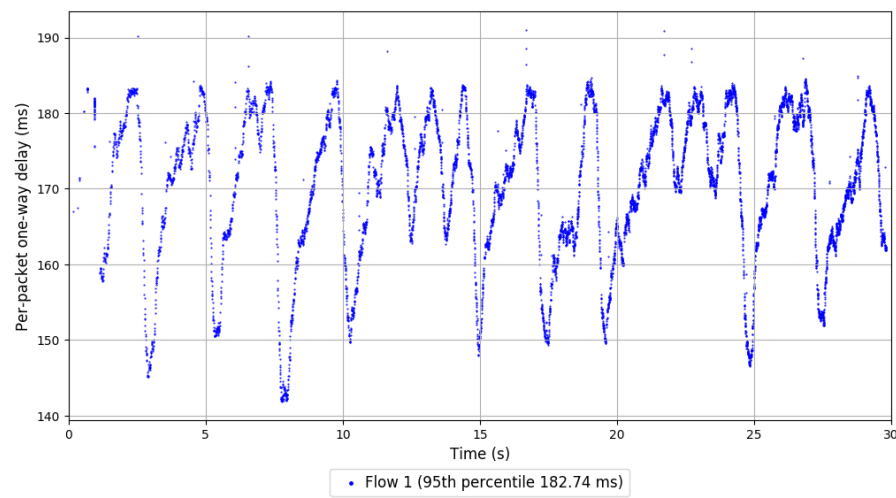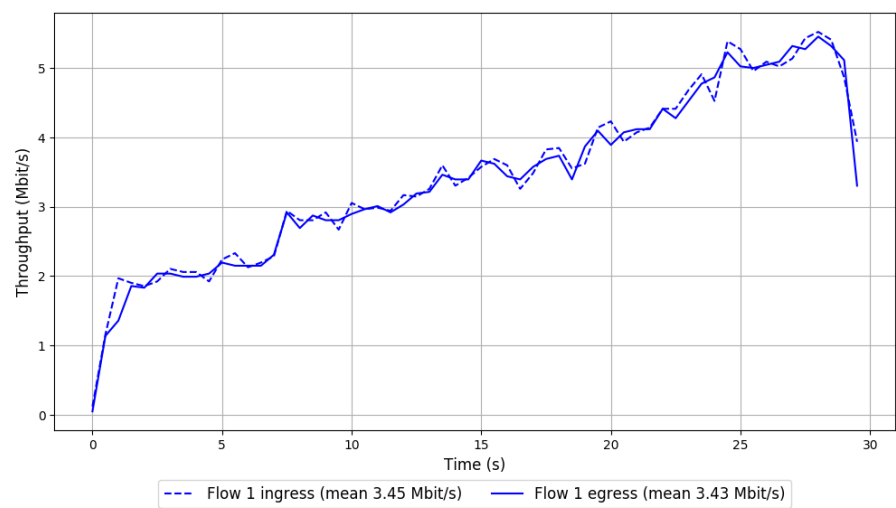
Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: Sun, 06 Aug 2017 07:44:42 +0000
End at: Sun, 06 Aug 2017 07:45:12 +0000
Local clock offset: 2.188 ms
Remote clock offset: 0.5 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:34 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 3.43 Mbit/s
95th percentile per-packet one-way delay: 182.744 ms
Loss rate: 1.27%
-- Flow 1:
Average throughput: 3.43 Mbit/s
95th percentile per-packet one-way delay: 182.744 ms
Loss rate: 1.27%
```
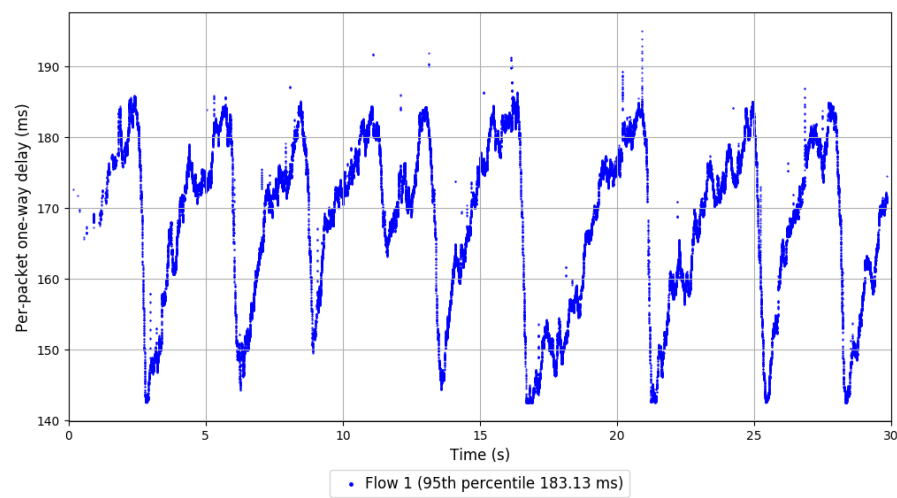
Run 2: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 3.45 Mbit/s)    Flow 1 egress (mean 3.43 Mbit/s)



Flow 1 (95th percentile 182.74 ms)

```
Run 3: Statistics of QUIC Cubic

Start at: Sun, 06 Aug 2017 08:04:39 +0000
End at: Sun, 06 Aug 2017 08:05:09 +0000
Local clock offset: 2.772 ms
Remote clock offset: 0.793 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:38 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.51 Mbit/s
95th percentile per-packet one-way delay: 183.135 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 27.51 Mbit/s
95th percentile per-packet one-way delay: 183.135 ms
Loss rate: 0.85%
```
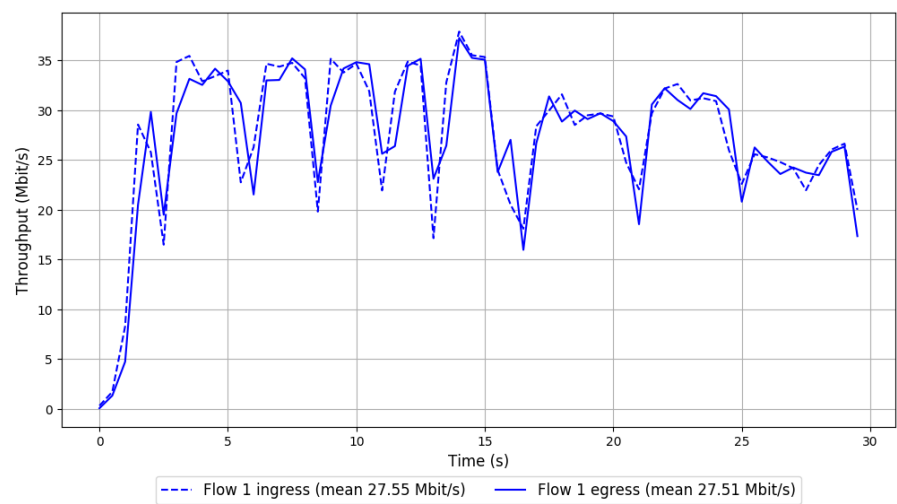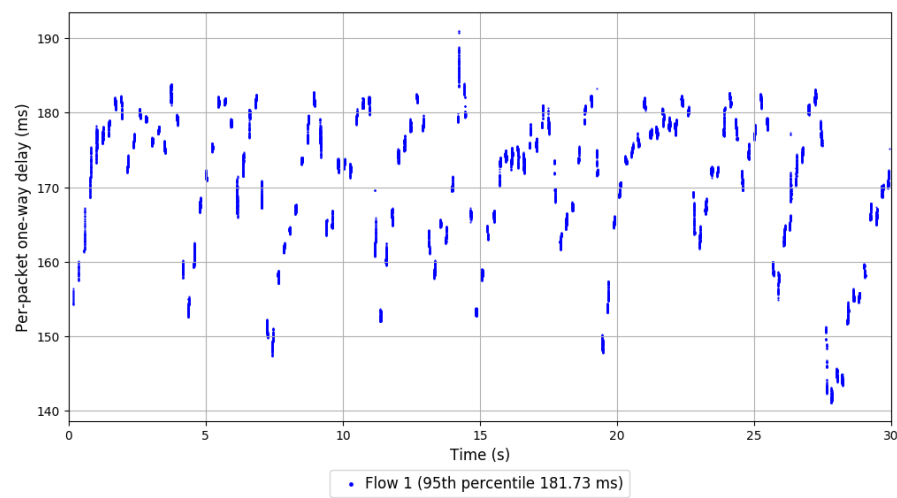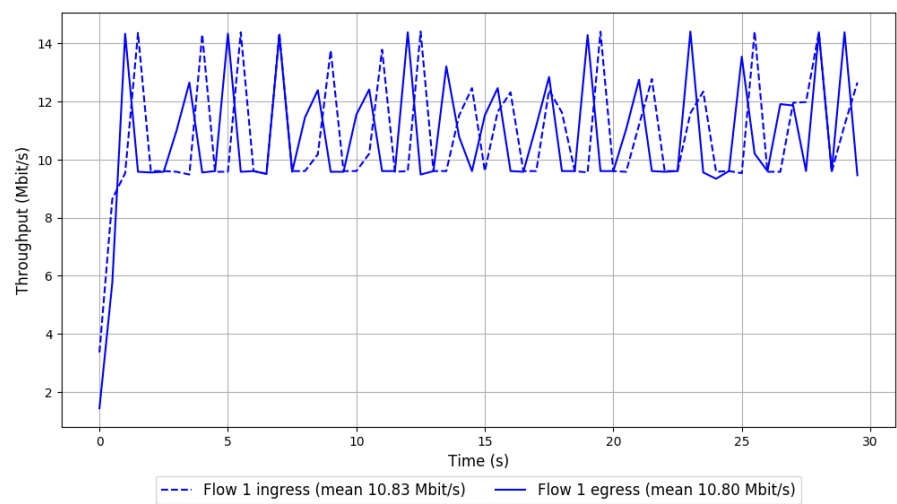
Run 3: Report of QUIC Cubic — Data Link



Flow 1 ingress (mean 27.55 Mbit/s) ----- Flow 1 egress (mean 27.51 Mbit/s)



• Flow 1 (95th percentile 183.13 ms)

```
Run 1: Statistics of Saturator

Start at: Sun, 06 Aug 2017 07:14:34 +0000
End at: Sun, 06 Aug 2017 07:15:04 +0000
Local clock offset: 1.885 ms
Remote clock offset: -0.192 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:38 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.80 Mbit/s
95th percentile per-packet one-way delay: 181.731 ms
Loss rate: 0.95%
-- Flow 1:
Average throughput: 10.80 Mbit/s
95th percentile per-packet one-way delay: 181.731 ms
Loss rate: 0.95%
```
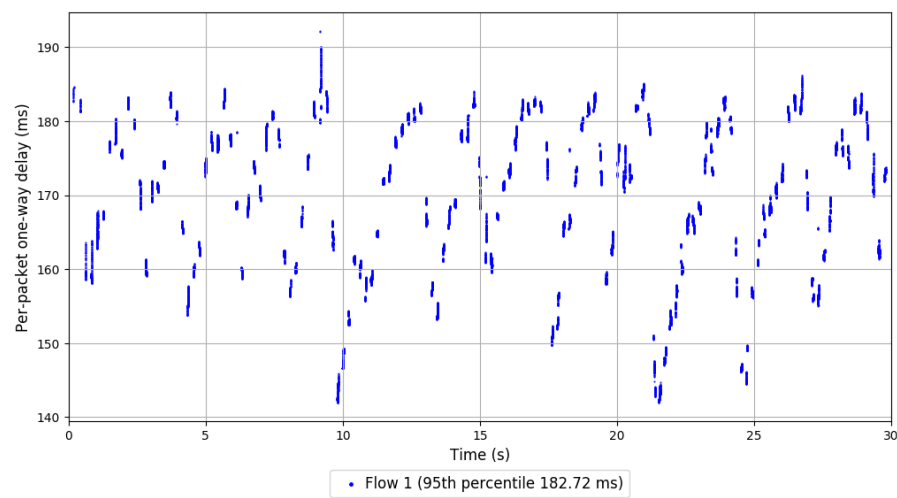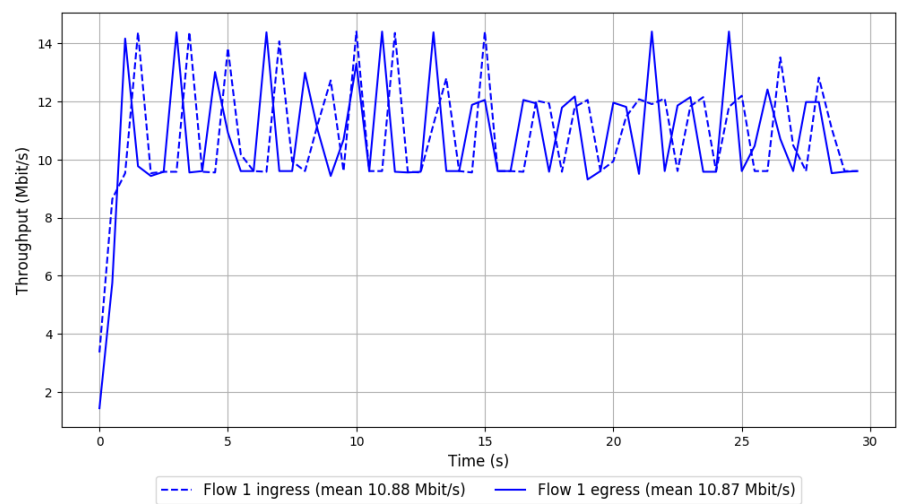
Run 1: Report of Saturator — Data Link

```
Run 2: Statistics of Saturator

Start at: Sun, 06 Aug 2017 07:34:32 +0000
End at: Sun, 06 Aug 2017 07:35:02 +0000
Local clock offset: 2.236 ms
Remote clock offset: 0.34 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:38 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.87 Mbit/s
95th percentile per-packet one-way delay: 182.718 ms
Loss rate: 0.85%
-- Flow 1:
Average throughput: 10.87 Mbit/s
95th percentile per-packet one-way delay: 182.718 ms
Loss rate: 0.85%
```
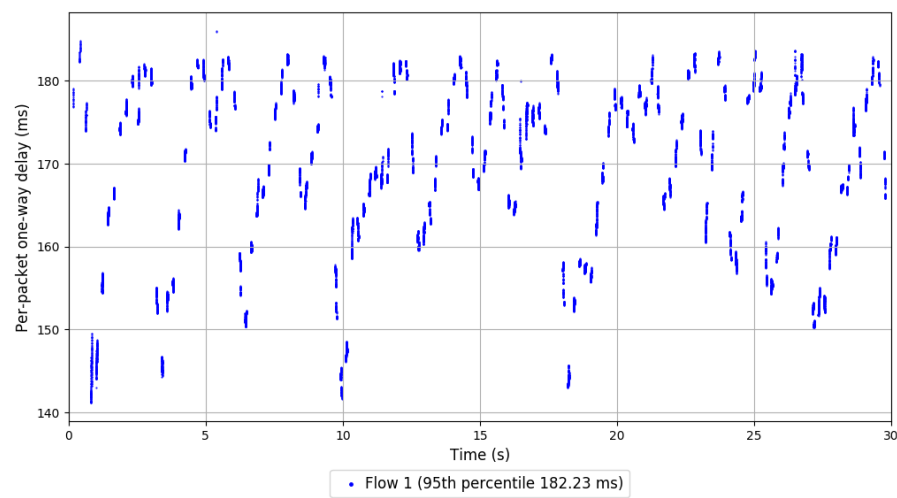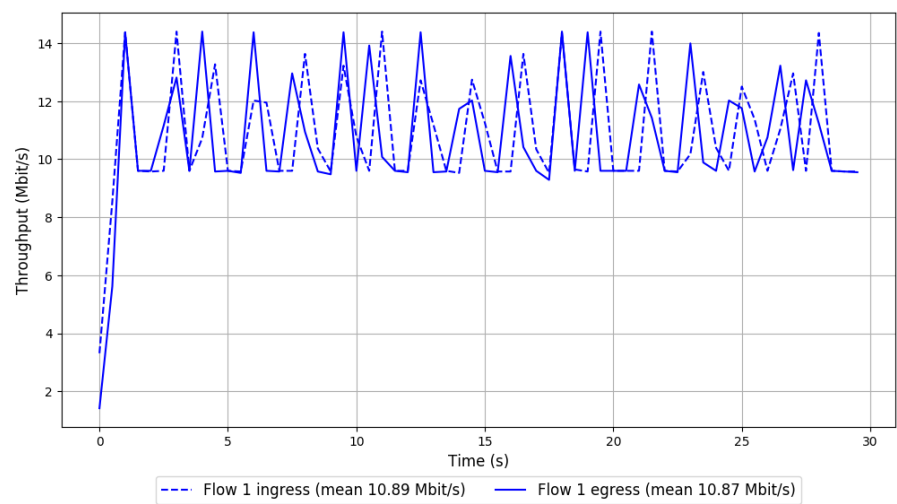
Run 2: Report of Saturator — Data Link



Flow 1 ingress (mean 10.88 Mbit/s) — Flow 1 egress (mean 10.87 Mbit/s)



• Flow 1 (95th percentile 182.72 ms)

```
Run 3: Statistics of Saturator

Start at: Sun, 06 Aug 2017 07:54:21 +0000
End at: Sun, 06 Aug 2017 07:54:51 +0000
Local clock offset: 2.089 ms
Remote clock offset: 0.626 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:41 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 10.87 Mbit/s
95th percentile per-packet one-way delay: 182.229 ms
Loss rate: 0.91%
-- Flow 1:
Average throughput: 10.87 Mbit/s
95th percentile per-packet one-way delay: 182.229 ms
Loss rate: 0.91%
```

Run 3: Report of Saturator — Data Link

```
Run 1: Statistics of SCReAM

Start at: Sun, 06 Aug 2017 07:24:05 +0000
End at: Sun, 06 Aug 2017 07:24:35 +0000
Local clock offset: 3.154 ms
Remote clock offset: 0.076 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:41 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 183.501 ms
Loss rate: 0.72%
-- Flow 1:
Average throughput: 0.11 Mbit/s
95th percentile per-packet one-way delay: 183.501 ms
Loss rate: 0.72%
```
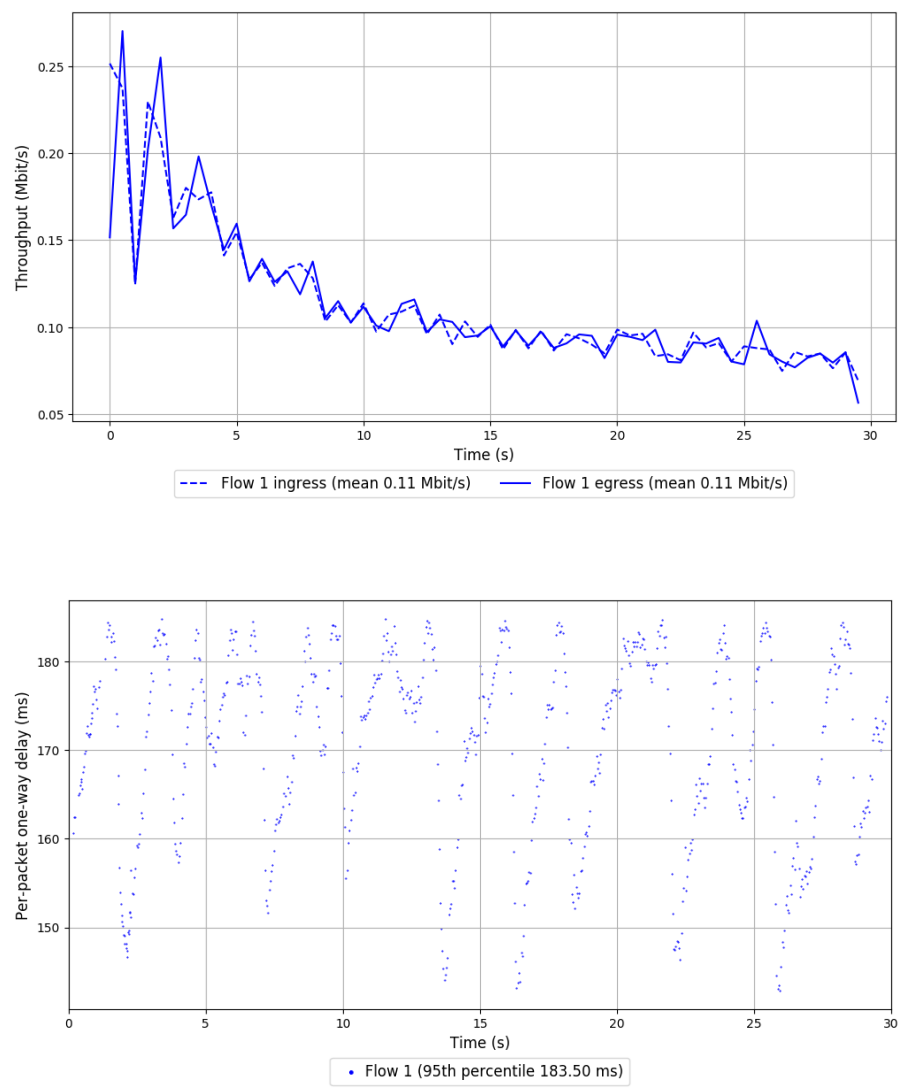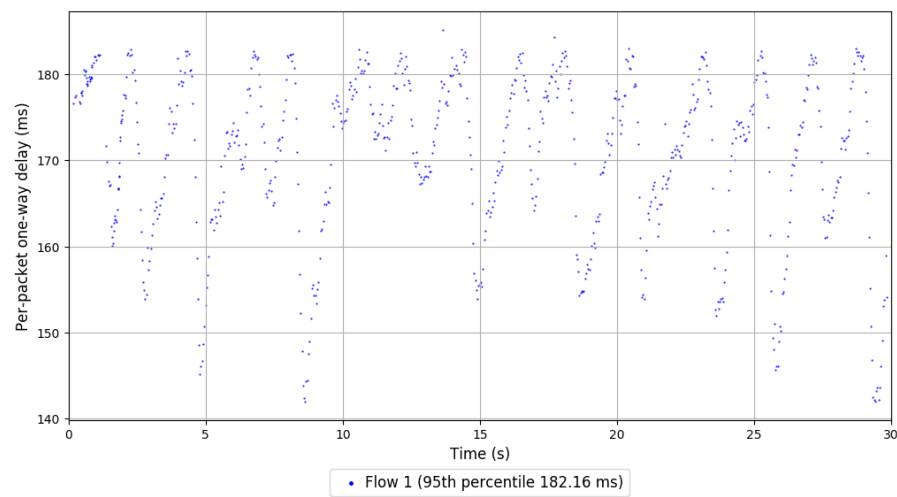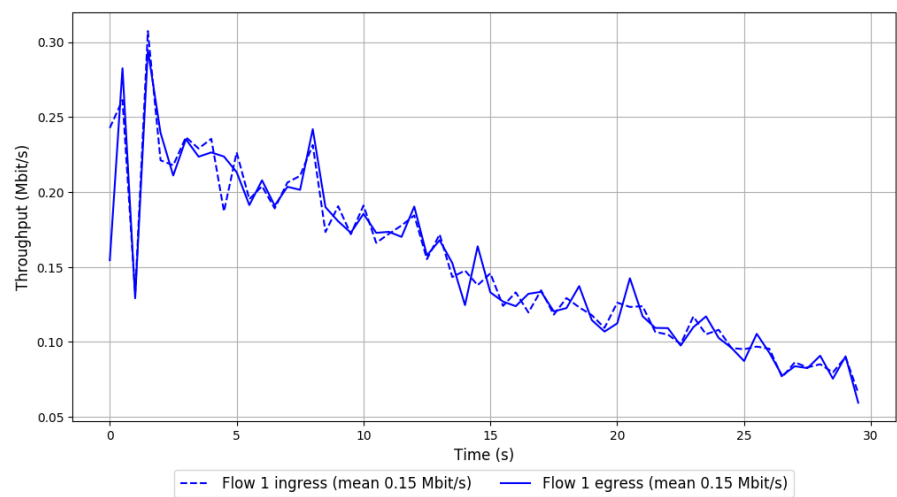
Run 1: Report of SCReAM — Data Link

```
Run 2: Statistics of SCReAM

Start at: Sun, 06 Aug 2017 07:43:28 +0000
End at: Sun, 06 Aug 2017 07:43:58 +0000
Local clock offset: 1.798 ms
Remote clock offset: 0.474 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:41 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 182.164 ms
Loss rate: 0.57%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 182.164 ms
Loss rate: 0.57%
```
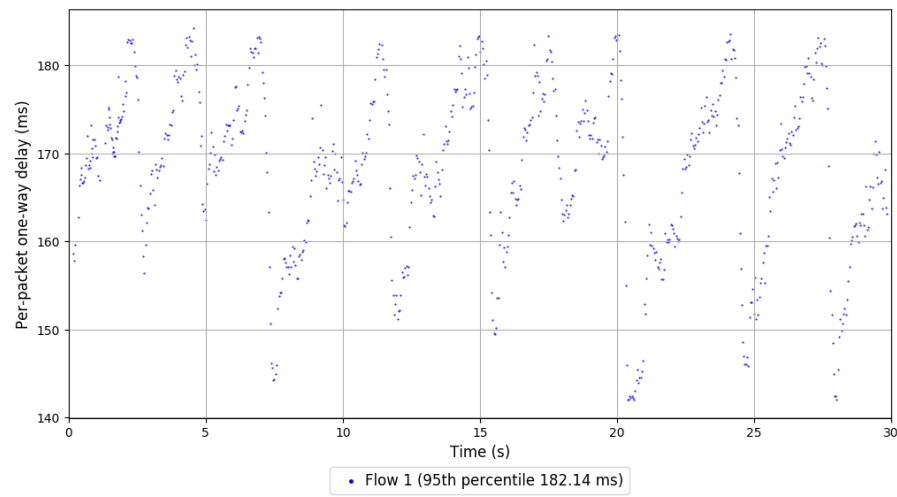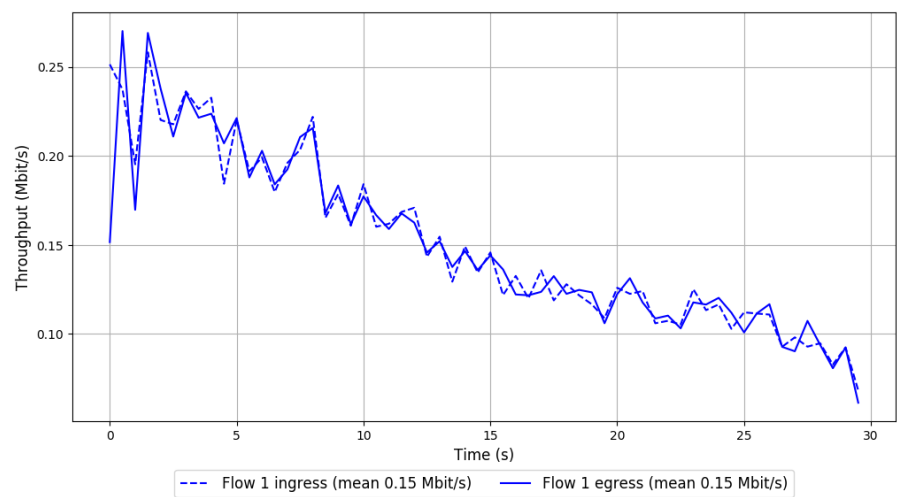
Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: Sun, 06 Aug 2017 08:03:22 +0000
End at: Sun, 06 Aug 2017 08:03:52 +0000
Local clock offset: 2.754 ms
Remote clock offset: 0.761 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:41 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 182.138 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 0.15 Mbit/s
95th percentile per-packet one-way delay: 182.138 ms
Loss rate: 0.53%
```
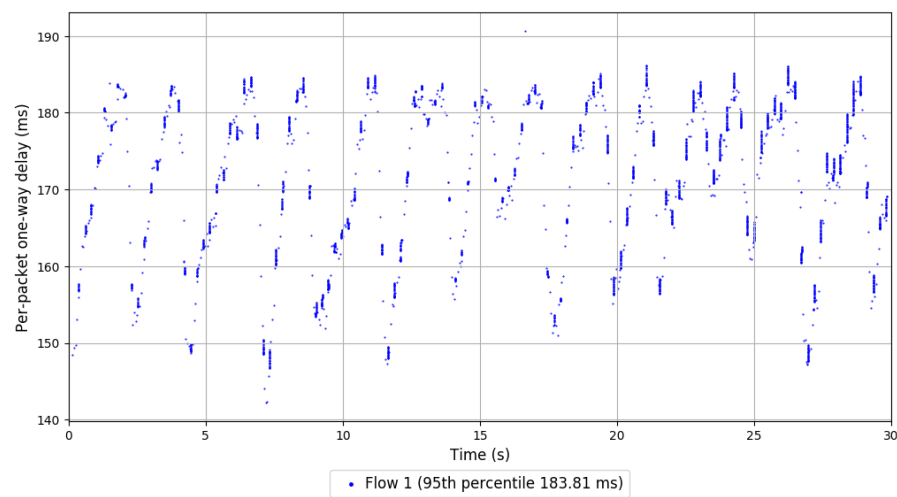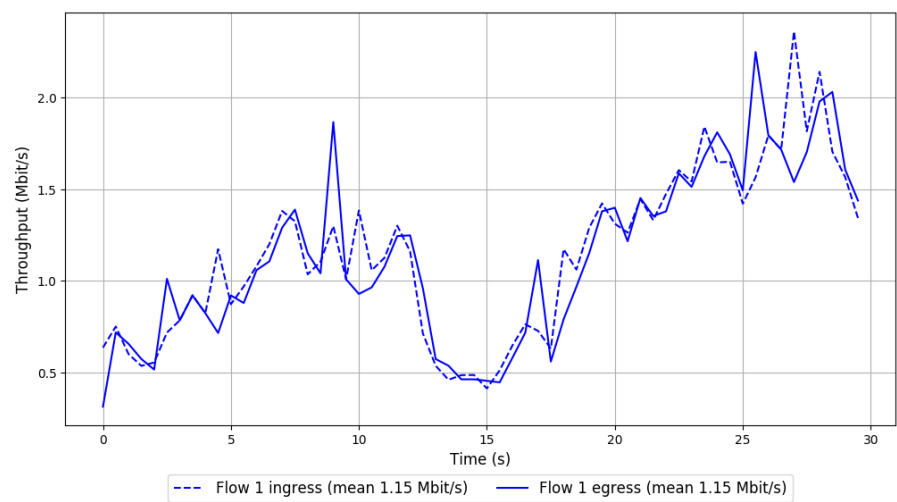
Run 3: Report of SCReAM — Data Link



Flow 1 ingress (mean 0.15 Mbit/s)     Flow 1 egress (mean 0.15 Mbit/s)



Flow 1 (95th percentile 182.14 ms)

63

```
Run 1: Statistics of Sprout

Start at: Sun, 06 Aug 2017 07:10:42 +0000
End at: Sun, 06 Aug 2017 07:11:12 +0000
Local clock offset: 2.856 ms
Remote clock offset: -0.26 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:42 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 183.815 ms
Loss rate: 0.98%
-- Flow 1:
Average throughput: 1.15 Mbit/s
95th percentile per-packet one-way delay: 183.815 ms
Loss rate: 0.98%
```
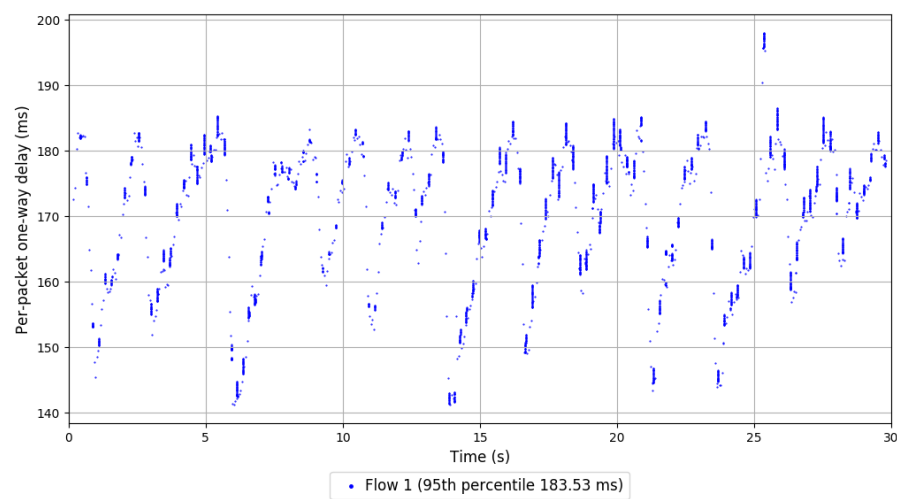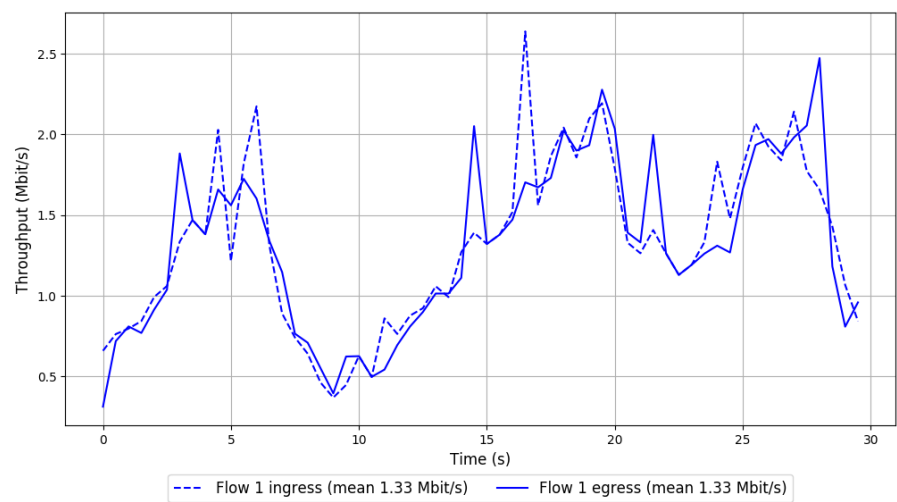
Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: Sun, 06 Aug 2017 07:30:39 +0000
End at: Sun, 06 Aug 2017 07:31:09 +0000
Local clock offset: 2.323 ms
Remote clock offset: 0.205 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:42 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 183.535 ms
Loss rate: 0.70%
-- Flow 1:
Average throughput: 1.33 Mbit/s
95th percentile per-packet one-way delay: 183.535 ms
Loss rate: 0.70%
```

Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: Sun, 06 Aug 2017 07:50:39 +0000
End at: Sun, 06 Aug 2017 07:51:09 +0000
Local clock offset: 2.155 ms
Remote clock offset: 0.557 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:43 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 183.101 ms
Loss rate: 1.02%
-- Flow 1:
Average throughput: 1.02 Mbit/s
95th percentile per-packet one-way delay: 183.101 ms
Loss rate: 1.02%
```
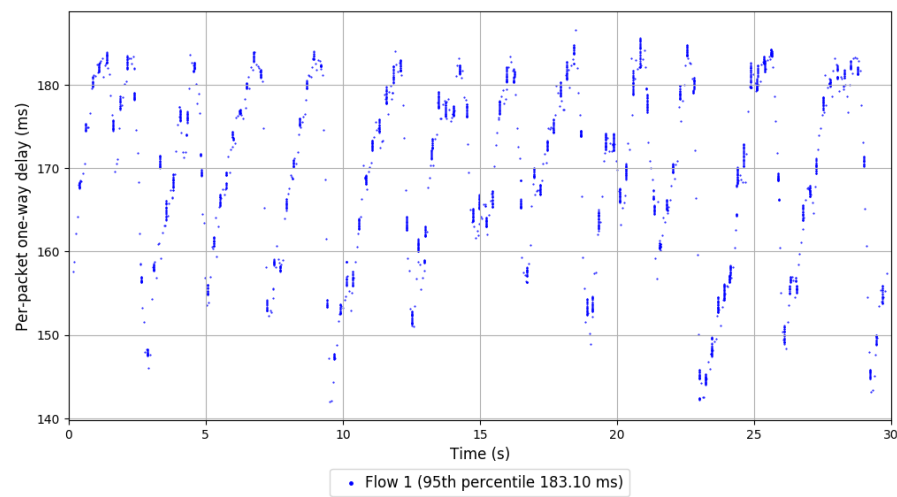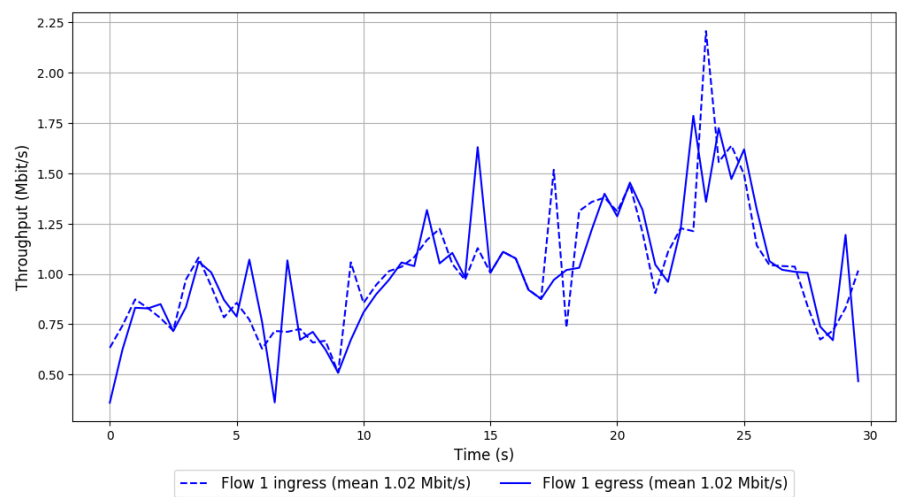
Run 3: Report of Sprout — Data Link

```
Run 1: Statistics of TaoVA-100x

Start at: Sun, 06 Aug 2017 07:06:16 +0000
End at: Sun, 06 Aug 2017 07:06:46 +0000
Local clock offset: 2.403 ms
Remote clock offset: -0.532 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:52 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 35.90 Mbit/s
95th percentile per-packet one-way delay: 182.849 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 35.90 Mbit/s
95th percentile per-packet one-way delay: 182.849 ms
Loss rate: 0.71%
```
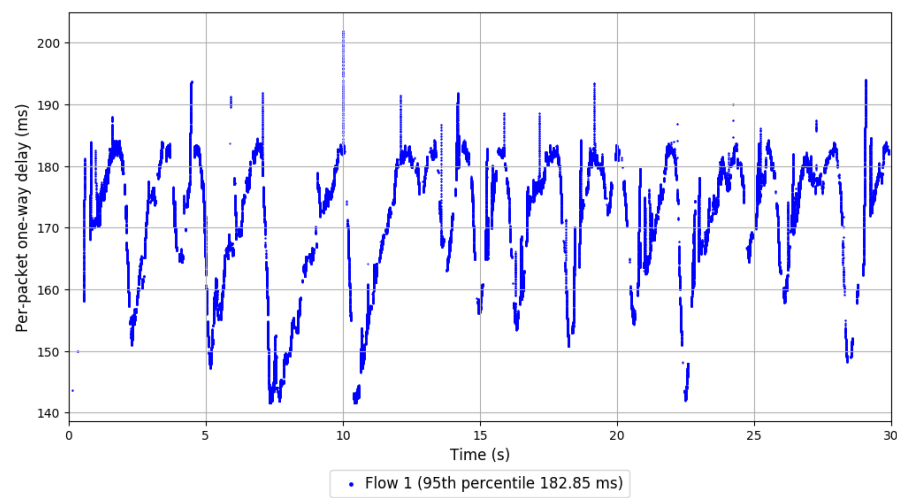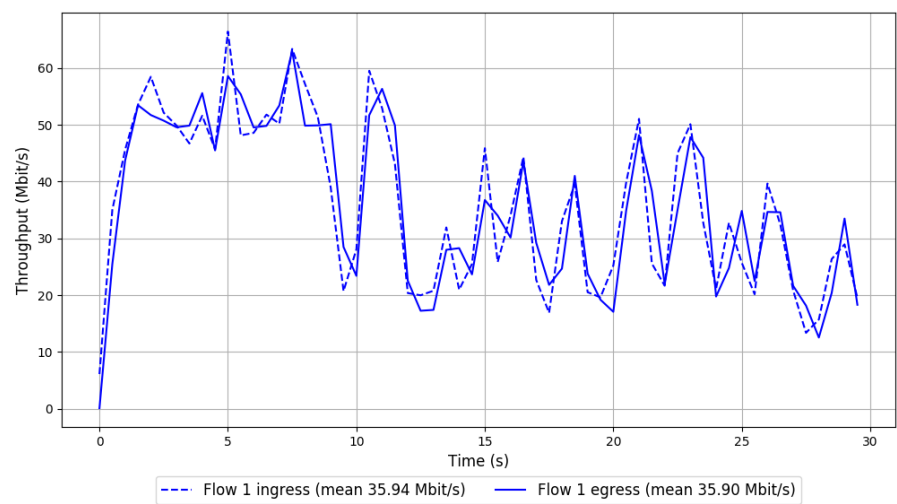
# Run 1: Report of TaoVA-100x — Data Link

```
Run 2: Statistics of TaoVA-100x

Start at: Sun, 06 Aug 2017 07:26:35 +0000
End at: Sun, 06 Aug 2017 07:27:05 +0000
Local clock offset: 2.562 ms
Remote clock offset: 0.193 ms

# Below is generated by plot.py at Sun, 06 Aug 2017 09:05:52 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 38.20 Mbit/s
95th percentile per-packet one-way delay: 183.385 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 38.20 Mbit/s
95th percentile per-packet one-way delay: 183.385 ms
Loss rate: 0.79%
```
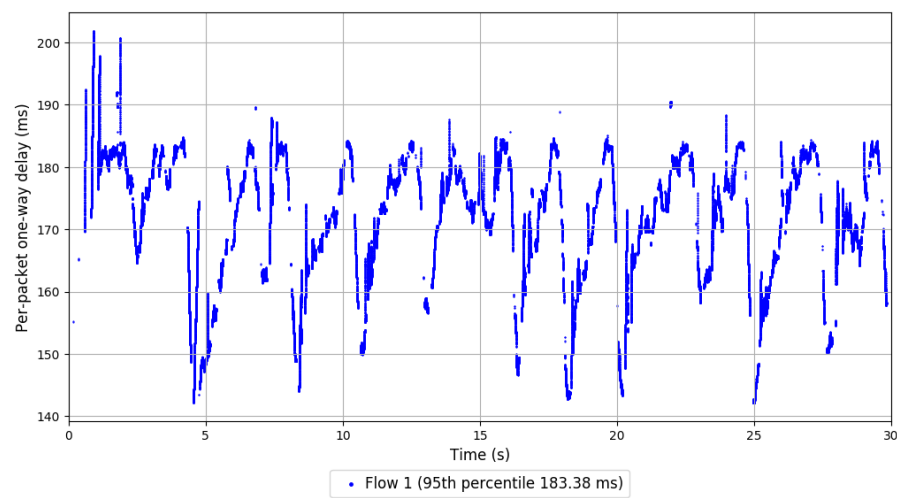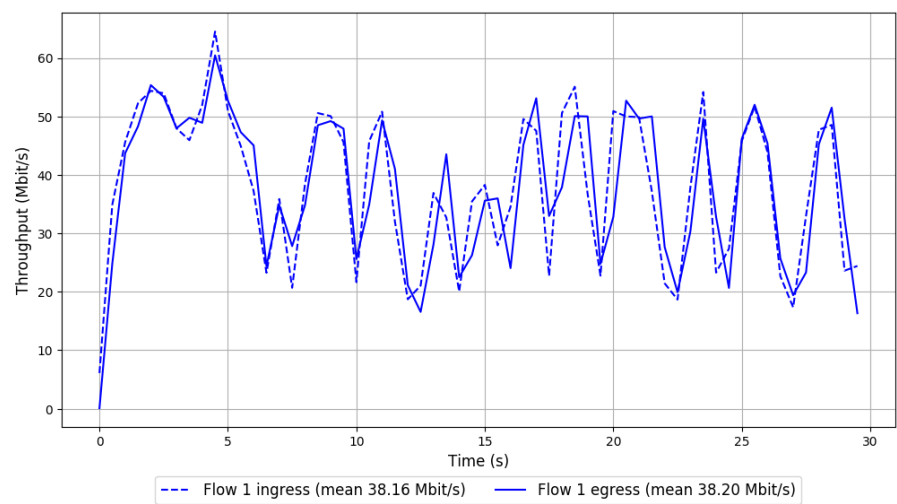
Run 2: Report of TaoVA-100x — Data Link

```
Run 3: Statistics of TaoVA-100x

Start at: Sun, 06 Aug 2017 07:45:58 +0000
End at: Sun, 06 Aug 2017 07:46:28 +0000
Local clock offset: 2.229 ms
Remote clock offset: 0.526 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:06:01 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 37.60 Mbit/s
95th percentile per-packet one-way delay: 182.836 ms
Loss rate: 0.79%
-- Flow 1:
Average throughput: 37.60 Mbit/s
95th percentile per-packet one-way delay: 182.836 ms
Loss rate: 0.79%
```
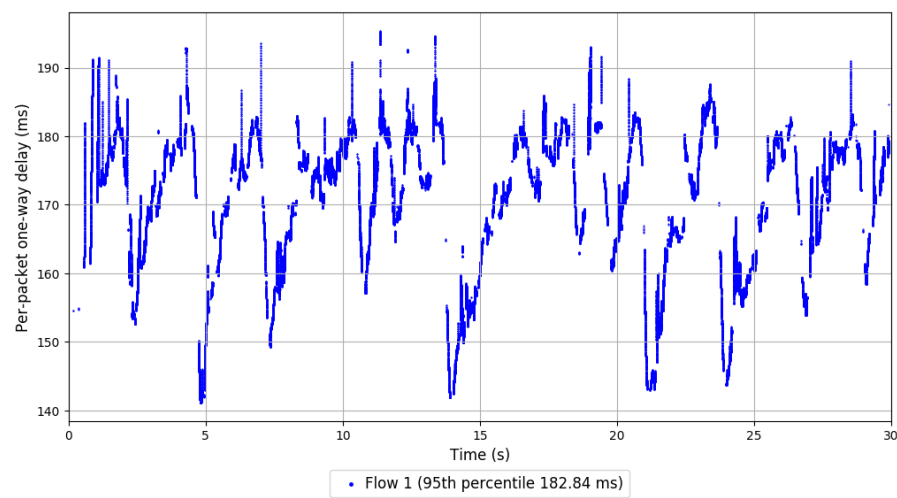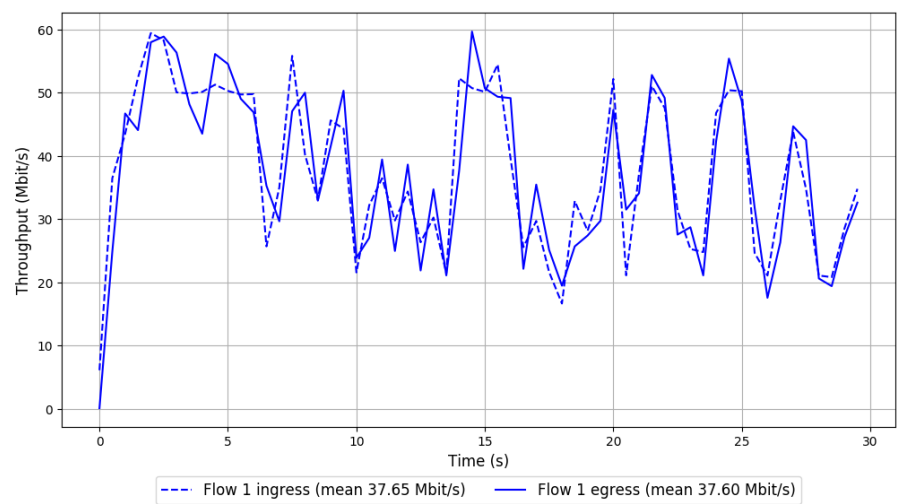
Run 3: Report of TaoVA-100x — Data Link

```
Run 1: Statistics of TCP Vegas

Start at: Sun, 06 Aug 2017 07:09:28 +0000
End at: Sun, 06 Aug 2017 07:09:58 +0000
Local clock offset: 3.247 ms
Remote clock offset: -0.269 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:06:01 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.16 Mbit/s
95th percentile per-packet one-way delay: 183.412 ms
Loss rate: 1.00%
-- Flow 1:
Average throughput: 1.16 Mbit/s
95th percentile per-packet one-way delay: 183.412 ms
Loss rate: 1.00%
```
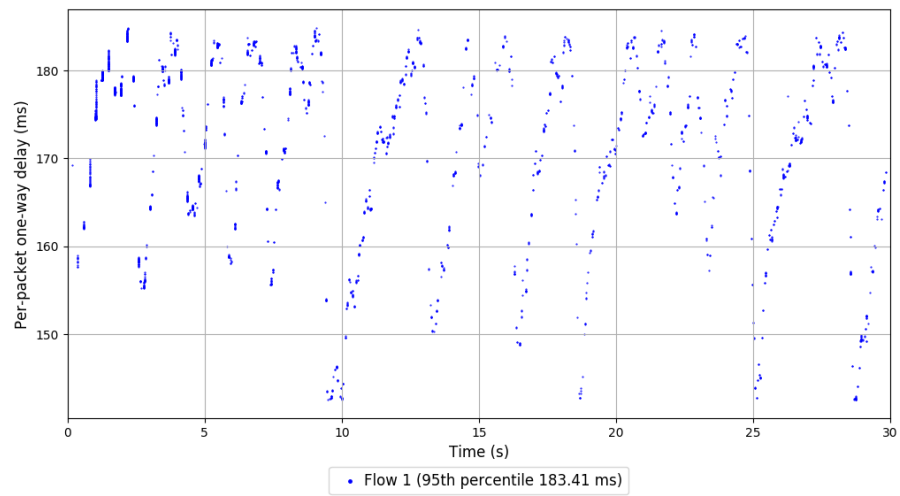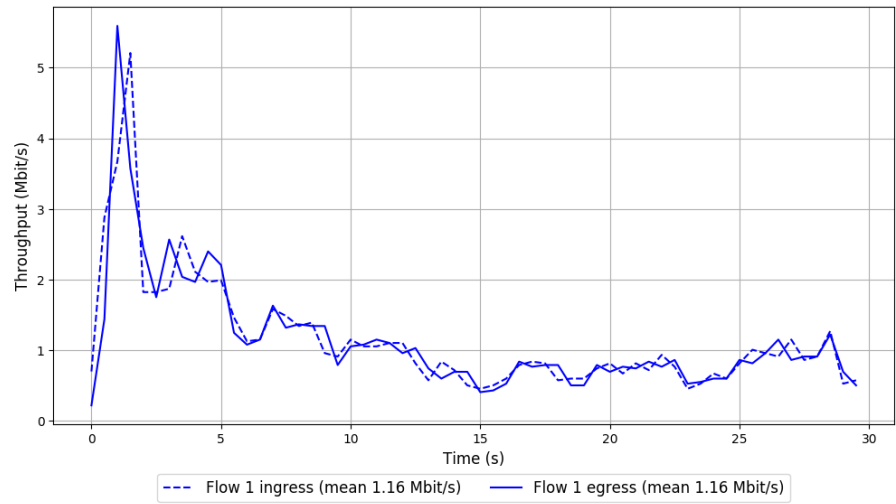
Run 1: Report of TCP Vegas — Data Link
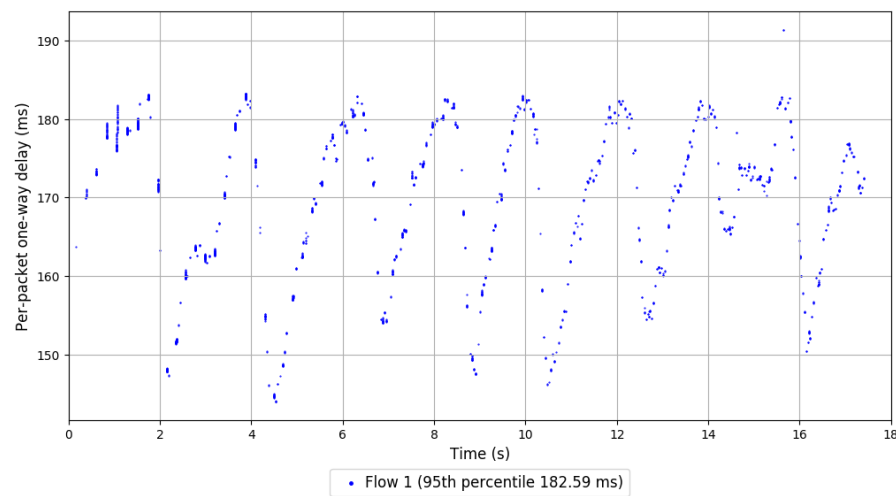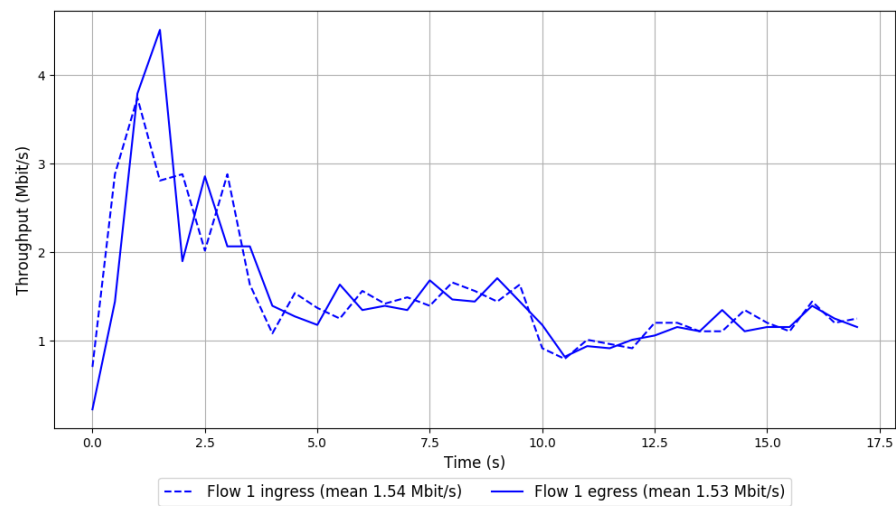
Run 2: Statistics of TCP Vegas

Start at: Sun, 06 Aug 2017 07:29:25 +0000
End at: Sun, 06 Aug 2017 07:29:55 +0000
Local clock offset: 2.335 ms
Remote clock offset: 0.242 ms

Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: Sun, 06 Aug 2017 07:49:25 +0000
End at: Sun, 06 Aug 2017 07:49:55 +0000
Local clock offset: 2.227 ms
Remote clock offset: 0.586 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:06:01 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 182.726 ms
Loss rate: 0.74%
-- Flow 1:
Average throughput: 1.58 Mbit/s
95th percentile per-packet one-way delay: 182.726 ms
Loss rate: 0.74%
```
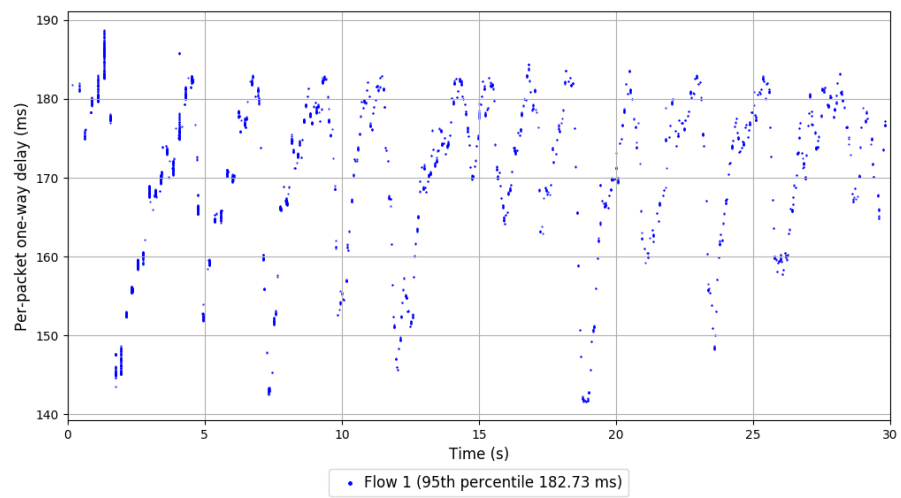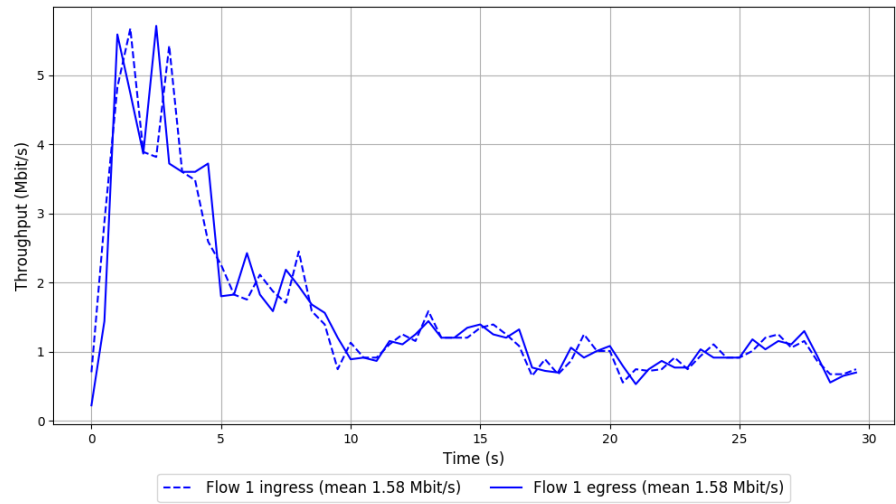
Run 3: Report of TCP Vegas — Data Link



Flow 1 ingress (mean 1.58 Mbit/s) ----    Flow 1 egress (mean 1.58 Mbit/s) ——



• Flow 1 (95th percentile 182.73 ms)

```
Run 1: Statistics of Verus

Start at: Sun, 06 Aug 2017 07:19:51 +0000
End at: Sun, 06 Aug 2017 07:20:21 +0000
Local clock offset: 2.363 ms
Remote clock offset: -0.021 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:06:01 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 27.76 Mbit/s
95th percentile per-packet one-way delay: 238.040 ms
Loss rate: 55.51%
-- Flow 1:
Average throughput: 27.76 Mbit/s
95th percentile per-packet one-way delay: 238.040 ms
Loss rate: 55.51%
```
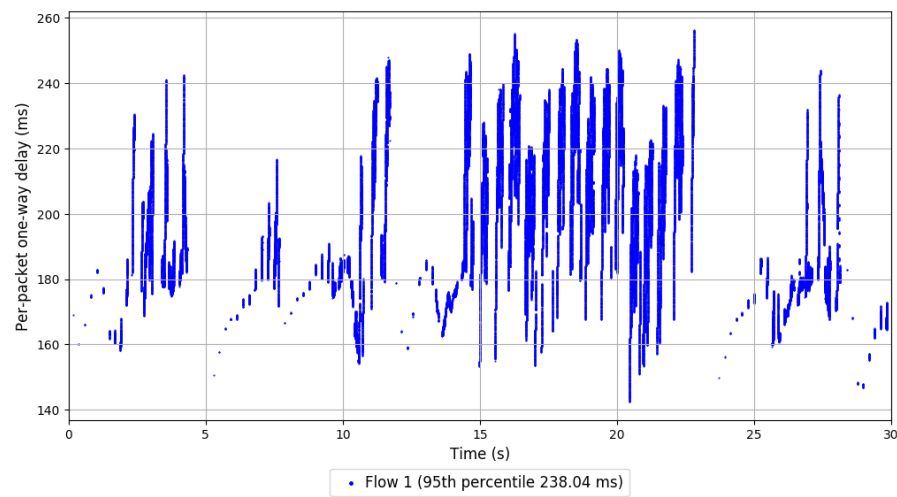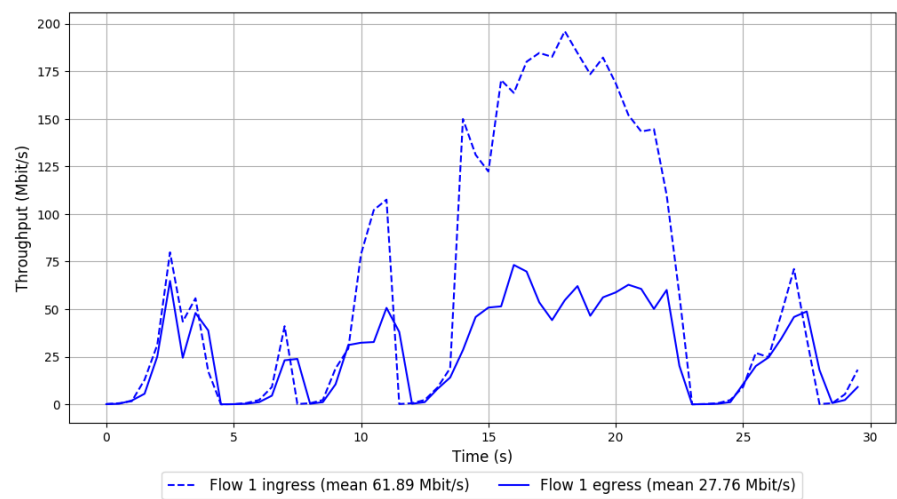
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: Sun, 06 Aug 2017 07:39:34 +0000
End at: Sun, 06 Aug 2017 07:40:04 +0000
Local clock offset: 2.304 ms
Remote clock offset: 0.417 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:06:04 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 24.43 Mbit/s
95th percentile per-packet one-way delay: 239.755 ms
Loss rate: 44.98%
-- Flow 1:
Average throughput: 24.43 Mbit/s
95th percentile per-packet one-way delay: 239.755 ms
Loss rate: 44.98%
```
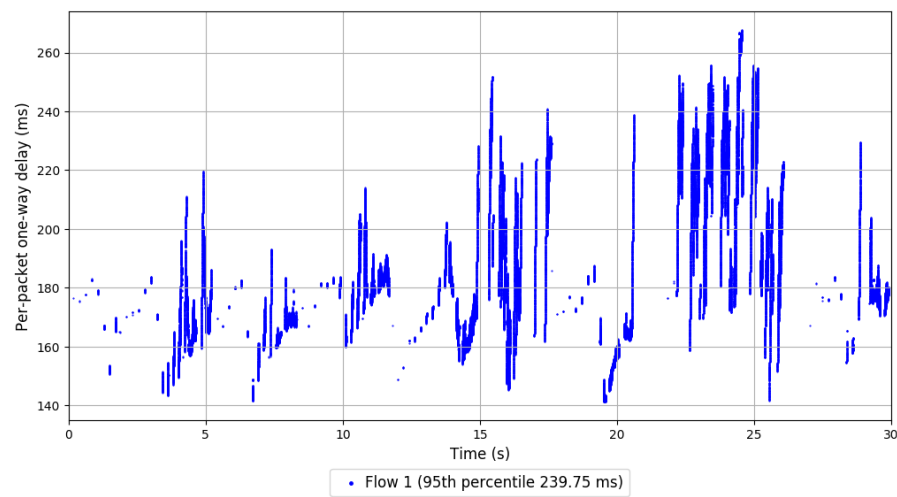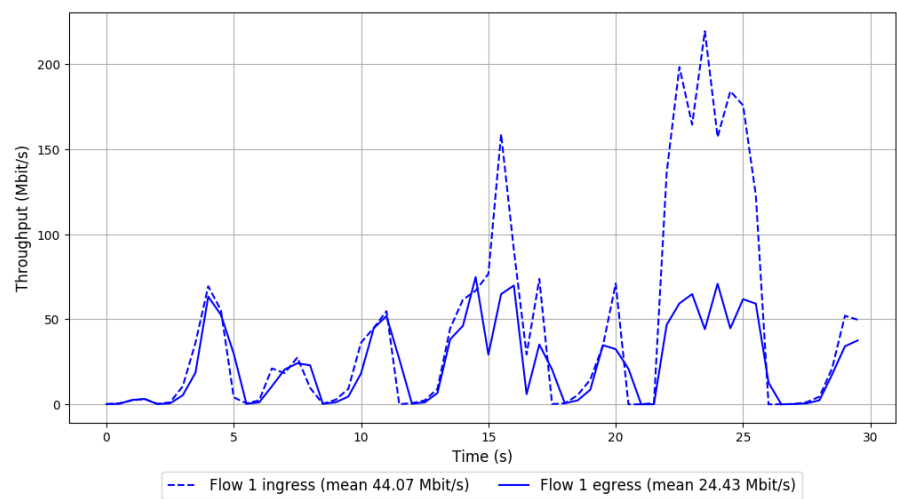
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: Sun, 06 Aug 2017 07:59:22 +0000
End at: Sun, 06 Aug 2017 07:59:52 +0000
Local clock offset: 2.042 ms
Remote clock offset: 0.628 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:06:08 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 32.53 Mbit/s
95th percentile per-packet one-way delay: 236.062 ms
Loss rate: 47.34%
-- Flow 1:
Average throughput: 32.53 Mbit/s
95th percentile per-packet one-way delay: 236.062 ms
Loss rate: 47.34%
```
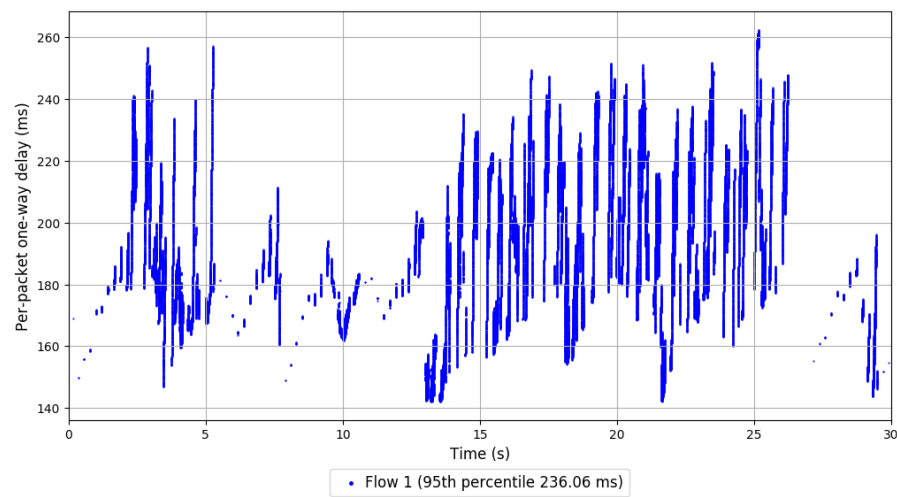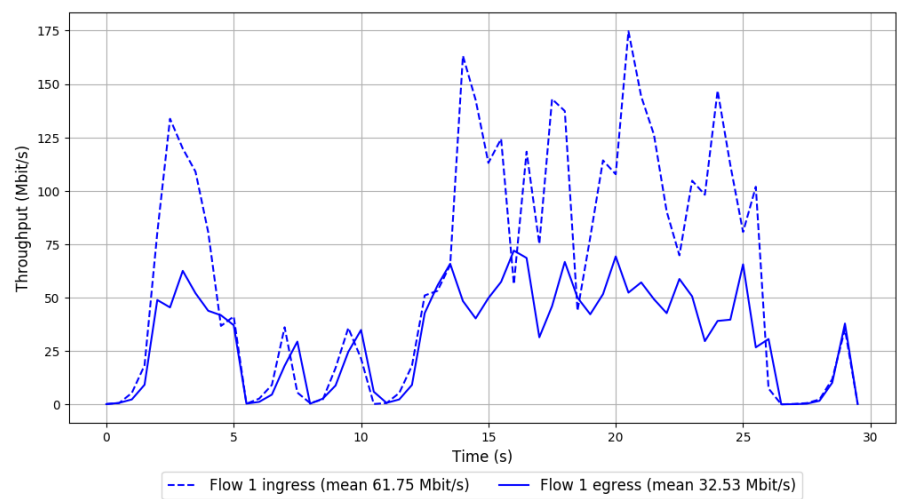
Run 3: Report of Verus — Data Link

```
Run 1: Statistics of WebRTC media

Start at: Sun, 06 Aug 2017 07:22:46 +0000
End at: Sun, 06 Aug 2017 07:23:16 +0000
Local clock offset: 1.948 ms
Remote clock offset: 0.121 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:06:08 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.67 Mbit/s
95th percentile per-packet one-way delay: 182.302 ms
Loss rate: 0.69%
-- Flow 1:
Average throughput: 2.67 Mbit/s
95th percentile per-packet one-way delay: 182.302 ms
Loss rate: 0.69%
```
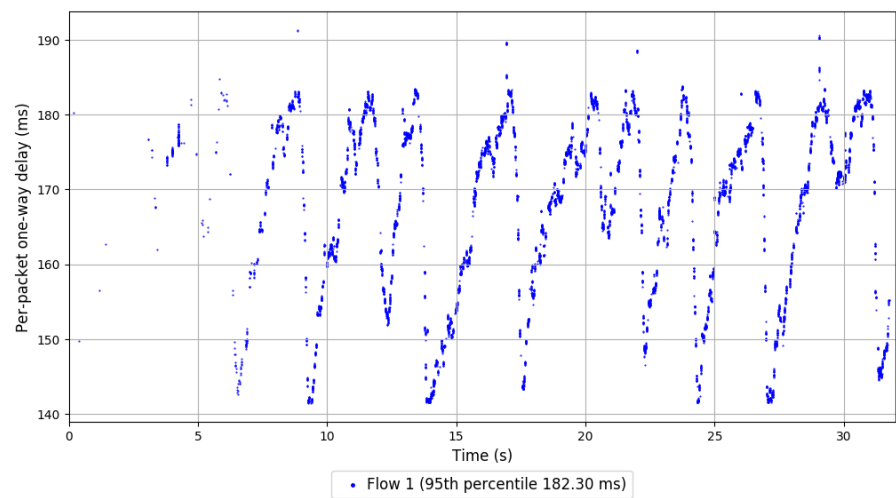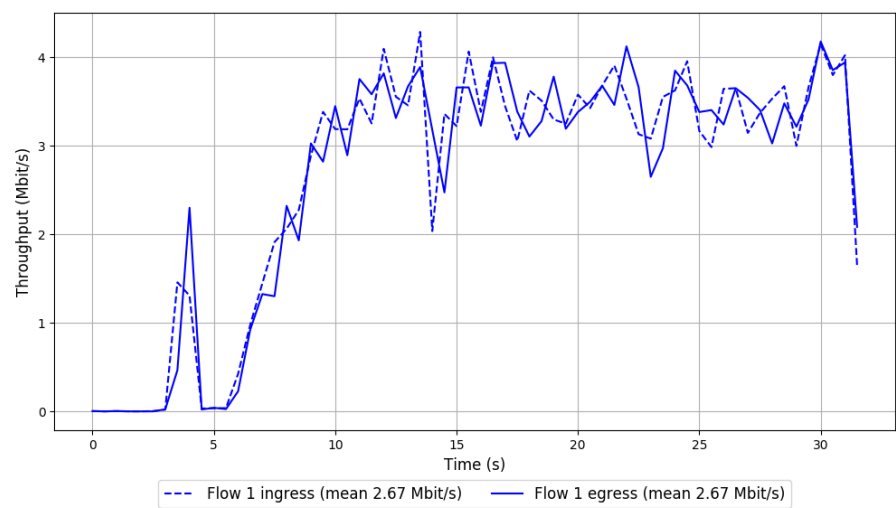
# Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: Sun, 06 Aug 2017 07:42:14 +0000
End at: Sun, 06 Aug 2017 07:42:44 +0000
Local clock offset: 2.963 ms
Remote clock offset: 0.416 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:06:08 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.43 Mbit/s
95th percentile per-packet one-way delay: 183.489 ms
Loss rate: 0.53%
-- Flow 1:
Average throughput: 2.43 Mbit/s
95th percentile per-packet one-way delay: 183.489 ms
Loss rate: 0.53%
```
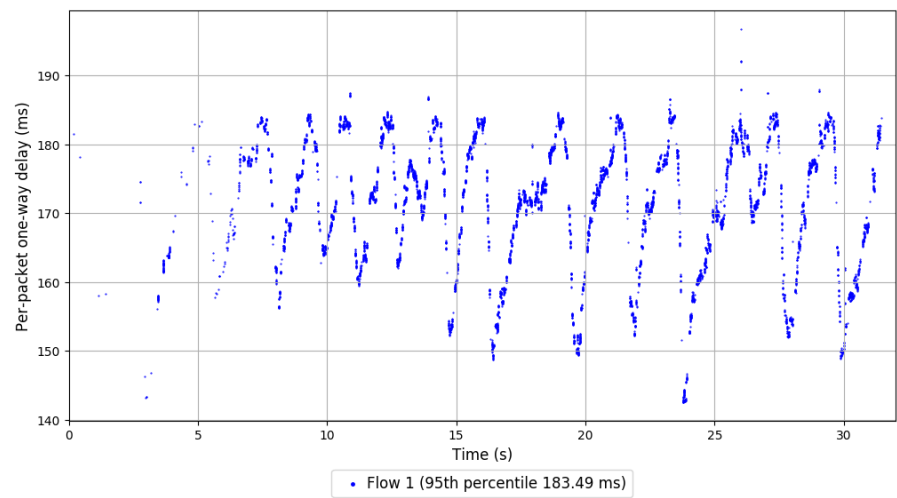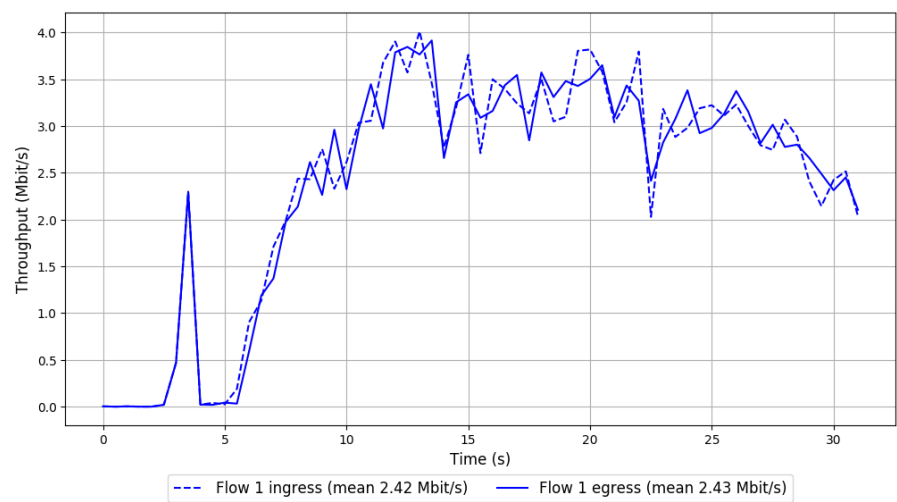
Run 2: Report of WebRTC media — Data Link



Flow 1 ingress (mean 2.42 Mbit/s)   Flow 1 egress (mean 2.43 Mbit/s)



Flow 1 (95th percentile 183.49 ms)

```
Run 3: Statistics of WebRTC media

Start at: Sun, 06 Aug 2017 08:02:08 +0000
End at: Sun, 06 Aug 2017 08:02:38 +0000
Local clock offset: 2.003 ms
Remote clock offset: 0.784 ms


# Below is generated by plot.py at Sun, 06 Aug 2017 09:06:08 +0000
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.62 Mbit/s
95th percentile per-packet one-way delay: 182.195 ms
Loss rate: 0.99%
-- Flow 1:
Average throughput: 2.62 Mbit/s
95th percentile per-packet one-way delay: 182.195 ms
Loss rate: 0.99%
```

Run 3: Report of WebRTC media — Data Link